

**GALVESTON COUNTY
PURCHASING DEPARTMENT**



REQUEST FOR PROPOSAL

RFP #B231015

COUNTY BUILDING AUTOMATION SYSTEMS

PROPOSAL DUE DATE: 03/23/2023

2:15 P.M.

***Rufus Crowder, CPPO, CPPB
Purchasing Agent
Galveston County
722 Moody (21st Street)
Fifth (5th) Floor
Galveston, Texas 77550
(409) 770-5372***



REQUEST FOR PROPOSAL COUNTY BUILDING AUTOMATION SYSTEMS FOR GALVESTON COUNTY

Purpose:

Galveston County is seeking a company to replace aging Building Automation Systems in various county buildings that are in legacy status and are no longer supported. The county buildings included, but not limited to, are listed below:

- Emergency Management Building – 1353 FM 646, Dickinson, TX 77539
- Wayne Johnson Community Center -4102A FM 517, La Marque, TX 77568
- Agrilife-Texas Coop Extension – 4102B FM 517, La Marque, TX 77568
- West County Annex – 11730 Hwy 6, Santa Fe, TX 77510
- Mid County Annex, 9850 Emmet F. Lowry Expressway, Texas City, TX 77590
- Sam Popovich Annex – 1922 Sealy, Galveston, TX 77550
- JP#3 Crystal Beach Courthouse/Eddie Barr Annex – 946 Noble Carl Drive, Crystal Beach, TX 77650
- Joe Faggard Community Center – 1750 Hwy 87, Crystal Beach, TX 77650

The Commissioners' Court at its discretion, may add more facilities at any time during the resultant contract period and all of its extensions.

Submittal Instructions:

Sealed proposals in sets of five (5), one (1) single-sided unbound original, and four (4) single-sided copies, will be received in the office of the Galveston County Purchasing Agent until 2:15 P.M. CST, on Thursday, March 23, 2023, and opened immediately in that office in the presence of Galveston County Auditor and the Purchasing Agent. Sealed proposals are to be delivered to Rufus G. Crowder, CPPO CPPB, Galveston County Purchasing Agent at the Galveston County Courthouse, 722 Moody, (21st Street), Floor 5, Purchasing, Galveston, Texas 77550, (409) 770-5372.

All proposals must be marked on the outside of the envelope:

RFP #B231015

County Building Automation Systems

Proposer's name and return address should be prominently displayed on the proposal package for identification purposes.

Specifications:

Specifications can be obtained on application at the office of the Galveston County Purchasing Agent, located in the Galveston County Courthouse, 722 Moody, (21st Street), Floor 5, Purchasing, Galveston, Texas, 77550, or by visiting the Galveston County website @ <http://www.galvestoncountytexas.gov/county-offices/purchasing>

The timestamp clock located in the Purchasing Agent's office shall serve as the official timekeeping piece for this solicitation process. Any proposals received after 2:15 P.M. on the specified date will be returned unopened.

Mandatory Pre-Proposal Conference:

A mandatory pre-proposal conference has been scheduled for Wednesday, March 1, 2023, at 10:00 a.m. at the County Courthouse, Purchasing Department, 722 Moody, (21st Street), 5th Floor, Galveston, TX 77550

Or

Interested parties can attend the mandatory pre-proposal conference virtually by using the following link:

Mandatory Virtual Pre-Proposal Conference:

<https://galvestoncountytexas.webex.com/galvestoncountytexas/j.php?MTID=m7716bdffd0abd07fa4a5c2e3a52cb424>

Join by meeting number

Meeting number (access code): 2483 578 3375

Meeting password: B231015 (2231015 from video systems)

Tap to join from a mobile device (attendees only)

+1-415-655-0001,,24835783375## US Toll

Join by phone

+1-415-655-0001 US Toll

Global call-in numbers

Join from a video system or application

Dial 24835783375@galvestoncountytexas.webex.com

You can also dial 173.243.2.68 and enter your meeting number.

Virtual Bid Opening:

Interested parties may attend the 2:15 p.m., Thursday, March 23, 2023 bid opening virtually by using the following link:

<https://galvestoncountytexas.webex.com/galvestoncountytexas/j.php?MTID=m38ded39a7b8a5d94e6f20fe80d806d30>

Join by meeting number

Meeting number (access code): 2482 884 1668

Meeting password: B231015 (2231015 from video systems)

Tap to join from a mobile device (attendees only)

+1-415-655-0001,,24828841668## US Toll

Join by phone

+1-415-655-0001 US Toll

Global call-in numbers

Join from a video system or application

Dial 24828841668@galvestoncountytexas.webex.com

You can also dial 173.243.2.68 and enter your meeting number.

Davis-Bacon Wage Rates:

Davis-Bacon Wage Rates **are not a requirement** for this solicitation.

Bonding Requirements:

Performance and Payment Bonds **are not requirements** of this solicitation.

The Galveston County Commissioners' Court reserves the right to waive any informality and reject any and all proposals, and to accept the proposal which, in its opinion, is most advantageous to Galveston County with total respect to the governing laws.

Rufus G. Crowder, CPPO CPPB
Purchasing Agent
Galveston County

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The Special Provisions and the General Provisions of this Request for Proposal and the Exhibits attached hereto are made a part of this agreement between the Parties. In the event of a conflict between the General Provisions and the Special Provisions, the terms of the Special Provisions shall control.

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REQUEST FOR PROPOSAL COUNTY BUILDING AUTOMATION SYSTEMS GALVESTON COUNTY, TEXAS

1. RFP PACKAGE

*The Request for Proposal, General and Special provisions, drawings, specifications/line-item details, contract documents, addenda (if any), and the Proposal are all part of the Proposal package and Resultant Contract. **Proposals must be submitted in sets of five (5), one (1) single-sided unbound original, and four (4) single-sided copies**, on the forms provided by the County if County forms are provided and shall include the Proposal sheets completed in their entirety and signed by an authorized representative by original signature. Failure to complete and sign the Proposal sheets/contract page(s) may disqualify the Proposal from being considered by the Commissioners' Court. Any individual signing on behalf of the Proposer expressly affirms that he or she is duly authorized to tender this Proposal and to sign the Proposal under the terms and conditions in this request for Proposal on behalf of the Proposer and to bind the Proposer to the terms and conditions of this request for Proposal and the Proposer's response hereto.*

Proposer further understands that Proposers' signing of the contract shall be of no effect unless the contract is subsequently awarded by the Commissioners' Court and the contract properly executed by the Commissioners' Court.

All figures must be written in ink or typed. Figures written in pencil or with erasures are not acceptable. However, mistakes may be crossed out, corrections inserted, and initialed in ink by the individual signing the Proposal. If there are discrepancies between unit prices quoted and extensions, the unit price shall prevail.

Each Proposer is required to thoroughly review this entire Request for Proposal package to familiarize themselves with the Proposal procedures, the plans and specifications for the requested work, as well as the terms and conditions of the contract the successful Proposer will execute with the County.

2. PROPOSER'S RESPONSIBILITY

The Proposer must affirmatively demonstrate its responsibility. The Proposer must also meet the following minimum requirements:

- A. have adequate financial resources or the ability to obtain such resources as required;
- B. be able to comply with all federal, state, and local laws, rules, regulations, ordinances, and orders regarding this request for Proposal;
- C. have a satisfactory record of performance;
- D. have a satisfactory record of integrity and ethics; and
- E. be otherwise qualified and eligible to receive an award.

3. TIME FOR RECEIVING PROPOSALS

Proposals may be submitted by mail or hand delivery and **must be submitted only to the Galveston County Purchasing Agent**. If by delivery, the Proposer must deliver the Proposal to the reception desk in the County Purchasing Agent's Office. The delivery and mailing instructions for the Galveston County Purchasing Agent are the following:

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Rufus Crowder, CPPO CPPB
Galveston County Purchasing Agent
722 Moody, Fifth (5th) Floor
Galveston, Texas 77550

Proposals will **not** be accepted by facsimile transmission or by electronic mail (email) unless superseded by instructions within the Special Provisions section of this solicitation. Proposals must be received by the County Purchasing Agent on or before the deadline for the opening of the Proposals. **For clarity, mailing date/postmark is not sufficient – Proposals must be received by the County Purchasing Agent on or before the deadline.** Late Proposals will not be accepted and will be returned to the Proposer unopened. Proposals received prior to the submission deadline will be maintained unopened until the specified time for opening.

The County Purchasing Agent will accept Proposals from 8:00 a.m. to 5:00 p.m. on each business day up to the submission deadline. Business days do not include Saturdays and Sundays, and do not include other days in which the County is closed for business in observance of holidays or for other reasons.

The time-stamp clock within the County Purchasing Agent's Office shall be the official time clock for the purpose of this solicitation and thus shall be the determinant of whether the Proposal was timely received.

The Proposer should prominently identify the procurement number and name on the outside of the envelope/ mailing package. If the Proposer fails to identify the request for Proposal number and name on the outside of the envelope as required, the Purchasing Agent will open the envelope for the sole purpose of identifying the solicitation number for which the submission was made. The envelope will then be resealed. No liability will attach to a County office or employee for the premature opening of a Proposal.

If a Proposal is not submitted, return this Request for Proposal and state reason (s), otherwise your name may be removed from the Purchasing Agent's mailing list.

4. COMPETITIVENESS, INTEGRITY, INQUIRIES AND QUESTIONS

To prevent biased evaluations and to preserve the competitiveness and integrity of the procurement process, **Proposers are to direct all communications regarding this Request for Proposal only to the Galveston County Purchasing Agent**, unless otherwise specifically noted.

Do not contact the requesting department. Attempts by offering firms to circumvent this requirement will be viewed negatively and may result in rejection of the Proposal of the firm found to be in non-compliance.

All questions regarding this Request for Proposal must be submitted in writing to:

Rufus Crowder, CPPO CPPB
Purchasing Agent
722 Moody
Fifth (5th) Floor

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REQUEST FOR PROPOSAL COUNTY BUILDING AUTOMATION SYSTEMS GALVESTON COUNTY, TEXAS

Galveston, Texas 77550
Fax: (409) 621-7997
E-mail: purchasing.bids@co.galveston.tx.us

All questions received and the responses thereto will be mailed, emailed, or faxed to all prospective Proposers by addendum. No inquiries except clarification of instructions will be addressed by telephone.

Proposer is advised to carefully review this Request for Proposal – it provides specific information necessary to aid participating firms in formulating a thorough response. Proposer's failure to examine all documents shall not entitle the Proposer to any relief from the conditions imposing in the Request for Proposal and the resultant contract.

An authorized person from the Proposer must sign the Proposal. This signatory must be a person from the submitting firm who is duly authorized to tender and sign the Proposal on behalf of the Proposer and to bind the Proposer to the terms and conditions of this Request for Proposal, the Proposer's response, and all other terms and conditions of the contract. By this signature, the Proposer further acknowledges that the Proposer has read the request for Proposal and Proposal documents thoroughly before submitting a Proposal and will fulfill the obligations in accordance with the terms, conditions, and specifications detailed herein.

5. PROPOSAL OPENING

The Purchasing Agent shall open the Proposals on the date and time specified herein. Proposals shall be opened in a manner that avoids disclosure of the contents to competing offerors and that keeps the Proposals secret during negotiations. The Purchasing Agent will examine Proposals promptly and thoroughly. **Upon opening, no Proposal may be withdrawn for a period of sixty (60) calendar days after the Proposal opening date.**

6. WITHDRAWAL OF PROPOSAL / FIRM PROPOSAL RULE

Proposers may request withdrawal of their sealed Proposal prior to the scheduled Proposal opening time provided the request for withdrawal is submitted to the Purchasing Agent in writing. No Proposals may be withdrawn for a period of sixty (60) calendar days after opening of the Proposals.

7. COMMISSIONERS' COURT

No contract is binding on the County until it is properly placed on the Commissioners' Court agenda, approved in open Court, authorized to be executed by the County Judge, and fully executed by both parties.

Department heads and elected officials are not authorized to enter into any type of agreement or contract on behalf of the County. Only the Commissioners' Court acting as a body may enter into a contract on behalf of and contractually bind the County. Additionally, department heads and elected officials are not authorized to agree to any type of supplemental agreements or contracts for goods or services. Supplemental agreements are subject to review by the County Legal Department prior to being accepted and signed by the County's authorized representative.

8. REJECTION OF PROPOSALS / DISQUALIFICATION

Galveston County, acting through its Commissioners' Court, reserves the right to:

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- reject any and all Proposals in whole or in part received by reason of this request for Proposal;
- waive any informality in the Proposals received;
- disregard the Proposal of any Proposer determined to be not responsible;
- disregard the Proposal of any Proposer determined to have not submitted its Proposal timely; and/or
- discontinue its efforts for any reason under this request for Proposal package at any time prior to actual execution of contract by the County.

Proposers may be disqualified, and rejection of Proposals may be recommended to the Commissioners' Court for any of (but not limited to) the following causes:

- A. Failure to use the Proposal forms furnished by the County, if applicable;
- B. Lack of signature by an authorized representative of Proposer;
- C. Failure to properly complete the Proposal;
- D. Engaging in communications regarding this procurement during the pendency of this procurement with County officials and/or personnel who are not within the Purchasing Department;
- E. Failure to meet the mandatory requirements of this request for Proposal; and/or
- F. Evidence of collusion among Proposers.

9. RESTRICTIVE OR AMBIGUOUS SPECIFICATIONS

It is the responsibility of the prospective Proposer to review the entire request for Proposal packet and to notify the Purchasing Agent if the specifications are formulated in a manner that would restrict competition or appear ambiguous. Any protest or question(s) regarding the specifications or Proposal procedures must be received in the Purchasing Agent's Office not less than seventy-two (72) hours prior to the time set for Proposal opening. Proposers are to submit their Proposal as specified herein or propose an approved equal.

10. SUBSTITUTES / DESCRIPTION OF MATERIALS AND EQUIPMENT

Any brand name or manufacturer reference used herein is intended to be descriptive and not restrictive, unless otherwise noted, and is used to indicate the type and quality of material. The term "or equal" if used, identifies commercially produced items that have the essential performance and salient characteristics of the brand name stated in the item description. All supplies, material, or equipment shall be new and of the most suitable grade for the purpose intended. For clarification, "new" includes products containing recovered materials that are EPA-designated items and additionally see Section 63 of these General Provisions on contracts involving federal funds. It is not the County's intent to discriminate against any materials or equipment of equal merit to those specified. However, if Proposer desires to use any substitutions, prior written approval must be obtained from the Purchasing Agent and sufficiently in advance such that an addendum may be issued. All material supplied must be one hundred percent (100%) asbestos free. Proposer, by submission of its Proposal, certifies that if awarded any portion of this procurement, the Proposer will supply only material and equipment that is 100% asbestos free.

11. EXCEPTIONS TO PROPOSAL CONDITIONS

The Proposer will list on a separate sheet of paper any exceptions to the conditions of this request for Proposal. This sheet will be labeled, "Exceptions to Proposal Conditions", and will be attached to the Proposal. If no exceptions are stated, it will be understood that all general and special conditions will be complied with, without exception.

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The Proposer must specify in its Proposal any alternatives it wishes to propose for consideration by the County. Each alternative should be sufficiently described and labeled within the Proposal and should indicate its possible or actual advantage to the program being offered.

The County reserves the right to offer these alternatives to other Proposers.

12. AWARDED PRICES

During the contractual period of the resultant contract, any prices submitted by the respondent shall include all costs to the County, including the material, delivery, current freight rate, state tax, or any other cost.

Award prices include all royalties and costs arising from patents, trademarks, and copyrights in any way involved in the work. Whenever the Awardee is required or desires to use any design, device, material or process covered by letters of patent or copyright, the Awardee shall indemnify and save harmless the County, its officers, agents and employees from any and all claims for infringement by reason of the use of any such patented design, tool, material, equipment, or process, to be performed under the contract, and shall indemnify the County its officers, agents, and employees for any costs, expenses and damages which may be incurred by reason of any infringement at any time during the prosecution or after the completion of the work.

Proposal pricing will be either lump sum or unit prices as shown on the Proposal sheets if included. The net priced items will be delivered to Galveston County, including all freight, shipping, and delivery charges. Galveston County is a tax-exempt local government of the State of Texas, therefore, no taxes shall be included with submitted pricing.

Cash discount must be shown on the Proposal, otherwise prices will be considered net. Unless prices and all information requested are complete, the Proposal may be disregarded and given no consideration.

In case of default by the contractor, the County of Galveston may procure the articles or services from other sources and may deduct from any monies due, or that may thereafter become due to the contractor, the difference between the price named in the contract of purchase order and the actual cost thereof to the County of Galveston. Prices paid by the County of Galveston shall be considered the prevailing market price at the time such purchase is made. Periods of performance may be extended if the facts as to the cause of delay justify such extension in the opinion of the Purchasing Agent and the Commissioners' Court.

13. PROCUREMENT CARD (P-CARD) PROGRAM

The County of Galveston participates in a Procurement Card (P-Card) program that allows payments made to a vendor by credit card. This method typically results in substantially faster bill payments, sometimes within three (3) to five (5) days of the actual transaction date. All transaction fees from the card provider are to be paid by the successful contractor. If awarded company will accept payment via credit card (Visa, MasterCard, etc.), this should be notated in the Proposal submittal.

14. PASS THROUGH COST ADJUSTMENTS

Except in instances of extreme extenuating circumstances, Contractor prices shall remain firm throughout the contract period and any renewals. Examples of extreme extenuating circumstances include such situations as a nationwide rail strike, oil shortage or oil embargo.

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In extreme extenuating circumstances, Contractors may be allowed to temporarily “pass through” additional costs they are forced to incur through no fault of their own. A request for a pass-through cost increase will not be considered unless a Contractor’s cost for the Contractor’s product exceeds 10% over the original cost for the product. Also, the increase in cost must be nationwide and consistent for a minimum period of sixty (60) calendar days. Costs that historically are anticipated to rise over a period of time (for example only, such as wages or insurance costs) do not qualify for pass through. If a Contractor thinks he will be asking for a pass-through cost adjustment during the term of the contract, then the original cost of the product to Contractor must be stated in Contractor’s original Proposal.

A request for a pass-through cost does not guarantee that one will be granted. Contractors must submit such information on each request as required by the County Purchasing Agent. The County Purchasing Agent will review each request on a case-by-case basis and if valid submit the request to the Commissioners’ Court for authorization and determination of the appropriateness of each request as well as amount and duration of increase. Contractors will not be permitted any additional compensation for mark-ups or profits based on the increase in price. Rather, such additional compensation will be limited to the actual increase in original cost to the Contractor as such increase is reflected by the original cost stated in the Proposal. But in no event will the amount of additional compensation exceed 25% increase in Contractor’s original cost for the product as such cost is reflected in Contractor’s original Proposal or the duration exceed a period of sixty (60) calendar days. In addition, should the cost, during the period of the pass through, return to normal or decrease to below pre pass through prices, appropriate downward adjustments shall be made. No more than one pass through adjustment will be permitted per year.

15. MODIFICATION OF PROPOSALS

A Proposer may modify a Proposal by letter at any time prior to the submission deadline for receipt of Proposals. Modification requests must be received by the Purchasing Agent prior to the submission deadline. Modifications made before opening time must be initialed by Proposer guaranteeing authenticity. Proposals may not be amended or altered after the official opening with the single exception that any product literature and/or supporting data required by the actual specifications, if any, will be accepted at any time prior to the Commissioners’ Court considering of same.

16. PRE-PROPOSAL CONFERENCE

A pre-Proposal conference for the purpose of discussing contract requirements and answering questions of prospective Proposers may be conducted in this procurement. A pre-Proposal conference may be mandatory or voluntary. If the pre-Proposal conference is mandatory, then the County is authorized to condition acceptance of a Proposal on compliance with attendance. The Special Provision section of this procurement shall specify if a pre-Proposal conference is to be held and shall specify whether the pre-Proposal conference is mandatory or voluntary. Regardless of whether the pre-Proposal conference is mandatory or voluntary, only a principal, officer, or employee of the Proposer may represent the Proposer at the pre-Proposal conference and no person may represent more than one Proposer at the pre-Proposal conference.

17. SIGNATURE OF PROPOSALS

Each Proposal shall give the complete name of the Proposer and the mailing address of the Proposer and be signed by an authorized representative by original signature with the authorized representative’s name and legal title typed below the signature line. Each Proposal shall include the Proposer’s Federal Employer

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Identification Number (FEIN). Failure to sign the Contract page(s) and Proposal response sheets may disqualify the Proposal from being considered by the County. The person signing on behalf of the Proposer expressly affirms that the person is duly authorized to tender the Proposal on behalf of the Proposer and to sign the Proposal sheets and contract under the terms and conditions of this Request for Proposal and to bind the Proposer hereto and further understands that the signing of the contract shall be of no effect until it is properly placed on the Commissioners' Court agenda, approved in open Court, authorized to be executed by the County Judge, and fully executed by both parties.

18. AWARD OF PROPOSALS – EVALUATION CRITERIA AND FACTORS

The award will be made to the responsible Proposer whose Proposal is determined to be the lowest and best evaluated offer demonstrating the best ability to fulfill the requirements set forth in this Request for Proposal. **The proposed cost to the County will be considered firm and cannot be altered after the submission deadline, unless the County invokes its right to request a best and final offer.**

“Lowest and best” means a Proposal or offer providing the best value considering associated direct and indirect costs, including transport, maintenance, reliability, life cycle, warranties, and customer service after a sale.

In determining the lowest and best Proposal for a contract for the purchase of earth-moving, material-handling, road maintenance, or construction equipment, the Commissioners' Court may also consider the information submitted under Section 262.0255 of the Local Government Code; and in determining the lowest and best Proposal for a contract for the purchase of road construction material, the Commissioners' Court may consider the pickup and delivery locations of the Proposers and the cost to the county of delivering or hauling the material to be purchased. The Commissioners' Court may award contracts for the purchase of road construction material to more than one Proposer if each of the selected Proposers submits the lowest and best Proposal for a particular location or type of material.

Each Proposer, by submitting a Proposal, agrees that if its' Proposal is accepted by the Commissioners' Court, the Proposer will furnish all items and services upon which prices have been tendered and upon the terms and conditions in this Proposal, including but not limited to the best and final offer if applicable, and the contract.

The contractor shall commence work only after the transmittal of a fully executed contract and after receiving written notification to proceed from the County Purchasing Agent. The contractor will perform all services indicated in the Proposal in compliance with this contract.

Neither department heads nor elected officials are authorized to sign any binding contracts or agreements prior to being properly placed on the Commissioners' Court agenda and approved in open court. Department heads and other elected officials are not authorized to enter into any type of agreement or contract on behalf of Galveston County. Only the Commissioners' Court, acting as a body, may enter into a contract on behalf of the County. Additionally, department heads and other elected officials are not authorized to agree to any type of supplemental agreements or contracts for goods or services. Supplemental agreements are subject to review by the County's legal counsel prior to being signed by the County's authorized representatives.

The County of Galveston reserves the right to accept Proposals on individual items listed, or group items, or on the Proposal as a whole; to reject any and all Proposals; to waive any informality in the Proposals; to disregard Proposals that are not submitted timely; to disregard the Proposals of Proposers determined to be not responsible; and to accept the Proposal that appears to be in the best interest of the County. The

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selection process may, however, include a request for additional information or an oral presentation to support the written Proposal.

In determining and evaluating the best Proposal, the pricing component may not necessarily be controlling, but quality, equality, efficiency, utility, general terms, delivery, suitability of the service offered, and the reputation of the service in general use will also be considered along with any other relevant items.

The County reserves the right to reject any or all Proposals in whole or in part received by reason of this Request for Proposal and may discontinue its efforts under this Request for Proposal for any reason or no reason or solely for the County's convenience at any time prior to actual execution of the contract by the County.

A Proposer whose Proposal does not meet the mandatory requirements set forth in this request for Proposal will be considered non-compliant.

The invitation to submit a Proposal which appears in the newspaper, or other authorized advertising mediums, these general provisions, the special specifications which follow, the Proposal sheets, forms, and any addenda issued are all considered part of the Proposal and resultant contract.

Each Proposer, by submitting a Proposal, agrees that if its Proposal is accepted by the Commissioners' Court, such Proposer will furnish all items and services upon the terms and conditions in this request for Proposal and the resultant contract.

Notice of contract award is anticipated to be made within ninety (90) days of opening of Proposals to the lowest responsive and responsible contractor, whose Proposal complies with all the requirements in the request for Proposal.

Contractor shall submit to the County, for approval, within ten (10) days from notice of contract award, all Certificates of Insurance evidencing the required coverage as described under Section 37, Requirement of and Proof of Insurance, or if different, then as described within the Special Provisions or resultant contract.

The contractor shall not commence work under these terms and conditions of the contract until all applicable Purchase Orders, Certificates of Insurance, Performance and Payment Bonds, and Irrevocable Letters of Credit (if required) have been approved by the County of Galveston and the Contractor has received notice to proceed in writing and an executed copy of the contract from the County Purchasing Agent.

19. DISPUTE AFTER AWARD / PROTEST

Any actual or prospective Proposer who is allegedly aggrieved in connection with this procurement or award of a contract resulting therefrom may protest. The protest shall be submitted in writing to the Purchasing Agent within seven (7) calendar days after such aggrieved person knows of or should have known of the facts giving rise thereto. If the protest is not resolved by mutual agreement, the Purchasing Agent will promptly issue a decision in writing to the protestant. If the protestant wishes to appeal the decision rendered by the Purchasing Agent, such appeal must be made to the Commissioners' Court through the Purchasing Agent. The decision of the Commissioners' Court will be final. The Commissioners' Court need not consider protests unless this procedure is followed.

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20. PUBLIC INFORMATION ACT (f/k/a Open Records Act)

The Proposer acknowledges that the County is a government body for purposes of the Public Information Act, codified as Chapter 552 of the Texas Government Code, and as such is required to release information in accordance with the provisions of the Public Information Act.

If Proposer considers any of its submitted information to be proprietary in nature, trade secret, or otherwise confidential, then it must clearly and conspicuously mark such information as proprietary, trade, secret, or confidential. By the submission of its Proposal, Proposer expressly affirms that it has clearly and conspicuously marked any information within its submission that Proposer considers confidential, proprietary, and/or trade secret.

In the event the County receives a request for information under the Public Information Act seeking information that the Proposer has marked as confidential, proprietary, and /or trade secret, then the County agrees that it shall provide notice to the Proposer of the request for information and the request for decision process under the Public Information Act. Thus, the County will submit the initial correspondence to the Texas Attorney General – however, the burden is and shall be on the Proposer to submit correspondence to the Attorney General if the Proposer wishes its information to be withheld. Proposer is deemed to have knowledge of the Public Information Act. **By the submission of its Proposal, Proposer expressly acknowledges that the burden to withhold its' information from public disclosure lays with the Proposer;** thus, Proposer further acknowledges and agrees that it shall submit comments to the Texas Attorney General in the request for decision process if Proposer wishes to have its' information withheld from public disclosure.

21. PROPOSER'S E-MAIL ADDRESSES – CONSENT TO DISCLOSURE

Notwithstanding the foregoing Section 20, Proposer acknowledges and agrees that the confidentiality of any and all email addresses Proposer uses or discloses in communicating with the County are **open** to the public in accordance with Section 552.137 of the Government Code and Proposer consents to the release of its email addresses.

22. RESULTANT CONTRACT

Proposer should submit a proposed contract / agreement with its response, or its sample material terms and conditions for review and consideration.

It is the intent of this solicitation to enter a contract that meets State and Federal guidelines. It is imperative that all responders seeking a contract under this solicitation effort, familiarize and adhere to the requirements of the General Provisions, Special Provisions, and the procurement standards as referenced in 2 C.F.R. Part 200, Sections 200.317-200.326, and Appendix II, 2 C.F.R. Part 200. Sections 200.317–200.326 and Appendix II are referenced in the General Provisions section of this solicitation.

The resultant contract consists of the following documents: Request for Proposal, General Provisions, Special Provisions, General Terms and Conditions (including specifications, drawings, and addenda), Proposer's Proposal, Proposal Sheets, contract award, and any other documents referenced herein or attached hereto for the work. Collectively these documents may also be referred to as the Plans and Specifications.

The Galveston County Commissioners Court, and/or authorized designees will be responsible for negotiating with the successful contractor, the scope of work, the standards of performance, the specific

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technology provided, and the support services required for the proposed projects. All contractual amendments will be processed in accordance with Galveston County Purchasing Policies and Procedures.

Amendments will also be brought to Galveston County Commissioners' Court for approval as deemed necessary. The approval process serves to ensure the project technology and/or service is within the scope of the resultant contract, and that pricing meets the agreed upon pricing methodology as specified in the contract, and that funds are available.

Proposer shall correctly and fully execute the resultant contract first. After this, the contract shall be set for consideration by the Commissioners' Court. If the Commissioners' Court authorizes the execution of the contract, the resultant contract shall become effective upon the Commissioners' Court execution of same, provided that the contract is executed by all parties to the contract. Contract documents shall consist of the contract, the General and Special Provisions, drawings, solicitation package (including best and final offer(s) if such is utilized), any addenda issued, and any change orders issued during the work. If applicable to the attached Proposal, Proposer must sign three (3) original contracts and return all three with their Proposal submittal.

The Contractor shall procure all permits, licenses, certificates, or any such approvals of plans or specifications as may be required by federal, state, and local laws, ordinances, rules, and regulations, for the proper execution and completion of the work under the resultant agreement.

The Contractor is responsible for all damage or loss by fire, theft or otherwise, to materials, tools, equipment, and consumables, left on County property by the contractor.

The resultant agreement is considered a non-exclusive agreement between the parties.

The successful contractor hereby certifies that this agreement is made without prior understanding, agreement or connection with any corporation, firm or person who submitted Proposals for the Work covered by

The resultant agreement and is in all respects fair and without collusion or fraud. As to Contractor, the successful contractor hereby warrants and certifies that he/she is authorized to enter into this agreement and to execute same on behalf of the Contractor as the act of the said Contractor.

The agreement, including the General and Special Conditions and all amendments or addenda issued by the county, contains all the terms and conditions agreed upon by the parties. No other agreements, oral or otherwise, regarding the subject matter of the resultant agreement shall be deemed to exist or to bind either party hereto.

To satisfy cost reasonableness responsibilities at the time of any extension period, the County of Galveston reserves the right to obtain additional quotes and current pricing information from the successful contractor and other contractors to perform the work as stated per the specification listed herein and in the resultant. The solicited results may be used by the County to determine if the contract extensions will be considered, or other service options be utilized.

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23. CONTRACT TERM

The term of the resultant contract will begin on the date of full execution or the execution by the Commissioners' Court, whichever is later, and will terminate on the date specified in the resultant contract unless terminated earlier as herein set forth.

24. COLLATERAL CONTRACT

The County reserves the right to provide by separate contract or otherwise, in such manner as not to delay its programs or damage said Contractor, all labor and material essential to the completion of the work that is not included in this contract.

Award prices include all royalties and costs arising from patents, trademarks, and copyrights in any way involved in the work. Whenever the Awardee is required or desires to use any design, device, material or process covered by letters of patent or copyright, the Awardee shall indemnify and save harmless the County, its officers, agents and employees from any and all claims for infringement by reason of the use of any such patented design, tool, material, equipment, or process, to be performed under the contract, and shall indemnify the County its officers, agents, and employees for any costs, expenses and damages which may be incurred by reason of any infringement at any time during the prosecution or after the completion of the work.

25. TERMINATION FOR DEFAULT

Failure of either party in the performance of any of the provisions of this contract shall constitute a breach of contract, in which case either party may require corrective action within ten (10) business days from date of receipt of written notice citing the exact nature of such breach. Failure of the party being notified to take corrective action within the prescribed ten (10) business days, or failure to provide written reply of why no breach has occurred, shall constitute a Default of Contract.

All notices relating to default by Proposer of the provisions of the contract shall be issued by the County through its Legal counsel, and all replies shall be made in writing to the County's legal counsel. Notices issued by or issued to anyone other than the County's legal counsel shall be null and void and shall be considered as not having been issued or received.

Galveston County reserves the right to enforce the performance of this contract in any manner prescribed by law in the event of breach or default of this contract, and may contract with another party, with or without solicitation of Proposals or further negotiations. At a minimum, Proposer shall be required to pay any difference in service or materials, should it become necessary to contract with another source, plus reasonable administrative costs, and attorney fees.

In the event of Termination for Default, Galveston County, its agents, or representatives shall not be liable for loss of any profits anticipated to be made by Proposer.

In addition to the remedies stated herein, the County has the right to pursue other remedies permitted by law or in equity.

No waiver by either party of any event of default under this agreement shall operate as a waiver of any subsequent default under the terms of this agreement.

County reserves the right to terminate this contract immediately in the event Proposer:

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- A. Fails to meet delivery or completion schedules; and/or
- B. Fails to otherwise perform in accordance with the accepted Proposal and the contract.

26. TERMINATION FOR CONVENIENCE

County may terminate this contract upon at least thirty (30) calendar days prior written notice for its convenience or for any reason deemed by the County to serve the public interest. As well, County may terminate this contract upon thirty (30) calendar days prior written notice for any reason resulting from any governmental law, order, ordinance, regulation, or court order. In no event shall County be liable for loss of any profits anticipated to be made hereunder by Proposer should this contract be terminated early.

27. FORCE MAJEURE

If by reason of Force Majeure either Party shall be rendered unable, wholly or in part, to carry out its responsibilities under this contract by any occurrence by reason of Force Majeure, then the Party unable to carry out its responsibility shall give the other Party notice and full particulars of such Force Majeure in writing within a reasonable time after the occurrence of the event, and such notice shall suspend the Party's responsibility for the continuance of the Force Majeure claimed, but for no longer period.

Force Majeure means acts of God, floods, hurricanes, tropical storms, tornadoes, earthquakes, or other natural disasters, acts of a public enemy, acts of terrorism, sovereign conduct, riots, civil commotion, strikes or lockouts, and other causes that are not occasioned by either Party's conduct which by the exercise of due diligence the Party is unable to overcome, and which substantially interferes with operations.

28. ESTIMATED QUANTITIES

Any reference to quantities shown in the request for Proposal is an estimate only. Since the exact quantities cannot be predetermined, the County reserves the right to adjust quantities as deemed necessary to meet its requirements.

29. CONTRACTOR INVESTIGATION

Before submitting a Proposal, each Proposer shall make all investigations and examinations necessary to ascertain all site conditions and requirements affecting the full performance of the contract and to verify any representations made by the County upon which the contractor will rely. Proposer shall exercise due diligence and is further charged with knowledge of the local, State, and Federal laws, rules, and regulations applicable to this contract. If the Proposer receives an award as a result of its Proposal submission in this procurement, the Proposer's failure to have made such investigations and examinations will in no way relieve the Proposer from its obligation to comply in every detail with all provisions and requirements of the contract, nor will a plea of ignorance of such conditions and requirements be accepted as a basis for any claim whatsoever by the contractor for additional compensation and/or for excused nonperformance.

30. NO COMMITMENT BY COUNTY OF GALVESTON

This request for procurement does not commit the County of Galveston to award any costs or pay any costs, or to award any contract, or to pay any costs associated with or incurred in the preparation of a Proposal in response to this request for Proposal and does not commit the County of Galveston to procure or contract for services or supplies.

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31. PROPOSAL COSTS BORNE BY PROPOSER

Galveston County shall not be liable for any costs incurred by Proposer in preparation, production, or submission of a Proposal, including but not limited to best and final offer if applicable. As well, Galveston County shall not be liable for any work performed by Proposer prior to issuance of fully executed contract and properly issued notice to proceed. Galveston County shall not be liable for any costs incurred by Proposer by reason of attending a pre-Proposal conference. Galveston County shall not be liable for any costs incurred by Proposer by reason of the County invoking use of best and final offers.

32. BEST AND FINAL OFFERS (BAFO)

In acceptance of Proposals, the County reserves the right to negotiate further with one or more of the Proposers as to any features of their Proposals and to accept modifications of the work and price when such action will be in the best interest of the County. This includes, but is not limited to, the solicitation of a Best and Final Offer from one or more of the Proposers. If a Best and Final Offer is invoked, this allows acceptable Proposers the opportunity to amend, change, or supplement their original Proposal. Proposers may be contacted in writing by the Purchasing Agent, requesting that they submit their Best and Final Offer. Any such Best and Final Offer must include discussed and negotiated changes.

33. SINGLE PROPOSAL RESPONSE

If only one Proposal is received in response to the request for Proposal, a detailed cost Proposal may be requested of the single Proposer. A cost/price analysis and evaluation and/or audit may be performed of the cost Proposal to determine if the price is fair and reasonable.

34. CHANGES IN SPECIFICATIONS

If it becomes necessary to revise any part of this Request for Proposal, a written notice of such revision will be provided to all Proposers in the form of addenda. The County is not bound by any oral representations, clarifications, or changes made in the written specifications by the County's employees or officials, unless such clarification or change is provided to Proposers in a written addendum from the Purchasing Agent. Proposers are advised to inquire prior to the submission deadline as to whether any addenda to this request for Proposal have been issued, as the successful Proposer will be required to abide by such addenda.

The County of Galveston reserves the right to revise or amend the specifications up to the time set for opening of Proposals. Such revisions and amendments, if any, shall be announced by form of addenda. Copies of such addenda (or addendum in the event only one addendum is issued in the procurement) shall be furnished to all prospective contractors. Prospective contractors are defined as those contractors listed on the County's request for proposal list for this material/service or those who have obtained documents from the Purchasing Agent's Office subsequent to the advertisement. If revisions and amendments require changes in quantities or prices proposed, or both, the date set for opening of Proposals may be postponed by such number of days as in the opinion of the County shall enable prospective contractors to revise their Proposals. In any case, the Proposal opening shall be at least seven (7) business days after the last revising or amendment addendum and the addendum shall include an announcement of the new date, if applicable, for the opening of Proposals.

35. PROPOSAL IDEAS AND CONCEPTS

The County reserves to itself the right to adopt or use for its benefit, any concept, plan, or idea contained in any Proposal.

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36. PROPOSAL DISCLOSURES

While this procurement is pending, the names of those who submitted Proposals will not be made public unless in conformity with the County Purchasing Act. Likewise, no pricing, staffing, or other contents of the Proposal information will be released unless in conformity with the County Purchasing Act. Proposers are requested to withhold all inquiries regarding their Proposal or other submissions until after an award is made. No communication is to be had with any County employee or official, other than the County Purchasing Agent, regarding whether a Proposal was received - violations of this provision may result in the rejection of a Proposal.

37. INDEMNIFICATION

The contractor agrees to assume all risks and responsibility for, and agrees to indemnify, defend, and save harmless, the County of Galveston, its elected and appointed officials and department heads, and its agents and employees from and against all claims, demands, suits, actions, recoveries, judgments, and costs and expenses including reasonable attorney's fees for the defense thereof, arising out of or in connection therewith on account of the loss of life, property or injury or damage to the person which shall arise from contractor's operations under this contract, its use of County facilities and/or equipment or from any other breach on the part of the contractor, its employees, agents or any person(s), in or about the County's facilities with the expressed or implied consent of the County. Contractor shall pay any judgment with cost which may be obtained against Galveston County resulting from contractor's operations under this contract.

Contractor agrees to indemnify and hold the County harmless from all claims of subcontractors, laborers incurred in the performance of this contract. Contractor shall furnish satisfactory evidence that all obligations of this nature herein above designated have been paid, discharged or waived. If Contractor fails to do so, then the County reserves the right to pay unpaid bills of which County has written notice direct and withhold from Contractor's unpaid compensation a sum of money reasonably sufficient to liquidate any and all such lawful claims.

38. REQUIREMENT OF AND PROOF OF INSURANCE

The successful Proposer shall furnish evidence of insurance to the County Purchasing Agent and shall maintain such insurance as required hereunder or as may be required in the Special Provisions or resultant contract, if different. Contractor shall obtain and thereafter continuously maintain in full force and effect, Commercial General Liability insurance, including but not limited to bodily injury, property damage, and contractual liability, with combined single limits as listed below or as may be required by State or Federal law, whichever is greater.

- A. For damages arising out of bodily injury to or death of one person in any one accident:
ONE HUNDRED THOUSAND AND NO/100 (\$100,000.00) DOLLARS.
- B. For damages arising out of bodily injury to or death of two or more persons in any one accident:
THREE HUNDRED THOUSAND AND NO/100 (\$300,000.00) DOLLARS.
- C. For any injury to or destruction of property in any one accident:
ONE HUNDRED THOUSAND AND NO/100 (\$100,000.00) DOLLARS.

Insurance shall be placed with insurers having an A.M. Best's rating of no less than A. Such insurance must be issued by a casualty company authorized to do business in the State of Texas, and in

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standard form approved by the Board of Insurance Commissioners of the State of Texas, with coverage provisions ensuring the public from loss or damage that may arise to any person or property by reason of services rendered by Contractor.

Galveston County shall be listed as the additional insured on policy certificates and shall be provided with no less than thirty (30) calendar days prior notice of any changes to the policy during the contractual period.

Certificates of Insurance, fully executed by a licensed representative of the insurance company written or countersigned by an authorized Texas state agency, shall be filed with the County Purchasing Agent within ten (10) business days of issuance of notification from the County Purchasing Agent to Proposer that the contract is being activated as written proof of such insurance and further provided that Proposer shall not commence work under this contract until it has obtained all insurance required herein, provided written proof as required herein, and received written notice to proceed issued from the County Purchasing Agent.

Proof of renewal/replacement coverage shall be provided prior to the expiration, termination, or cancellation date of any policy and Galveston County shall be named as an additional insured on any such renewal/replacement coverage and a certificate of insurance showing such shall be provided to the Purchasing Agent. Said insurance shall not be cancelled, permitted to expire, or changed without at least thirty (30) days prior written notice to the County.

Insurance required herein shall be maintained in full force and effect during the life of this contract and shall be issued on an occurrence basis. Contractor shall require that any and all subcontractors that are not protected under the Contractor's own insurance policies take and maintain insurance of the same nature and in the same amounts as required of Contractor and provide written proof of such insurance to Contractor. Proof of renewed/replacement coverage shall be provided prior to the expiration, termination, or cancellation date of any policy. Contractor shall not allow any subcontractor to commence work on the subcontract until such insurance required for the subcontractor has been obtained and approved.

Workers' Compensation Insurance: Successful Proposer shall carry in full force Workers' Compensation Insurance Policy(ies), if there is more than one employee, for all its' employees, including but not limited to full time, part time, and emergency employees employed by the successful Proposer. Current insurance certificates certifying that such policies as specified above are in full force and effect shall be furnished by successful Proposer to the County.

Insurance is to be placed with insurers having a Best rating of no less than A. The Proposer shall furnish the County with certificates of insurance and original endorsements affecting coverage required by these insurance clauses within ten (10) business days of receiving notification from the County Purchasing Agent that the contract is being activated. The certificates and endorsements for each insurance policy are to be signed by a person authorized by the insurer to bind coverage on its behalf. The Proposer shall be required to submit annual renewals for the term of this contract prior to expiration of any policy.

In addition to the remedies stated herein, the County has the right to pursue other remedies permitted by law or in equity.

The County agrees to provide Proposer with reasonable and timely notice of any claim, demand, or cause of action made or brought against the County arising out of or related to utilization of the property. Proposer shall have the right to defend any such claim, demand, or cause of action at its sole cost and expense and within its sole and exclusive discretion. The County agrees not to compromise or settle any

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claim or cause of action arising out of or related to the utilization of the property without the prior written consent of the Proposer.

In no event shall the County be liable for any damage to or destruction of any property belonging to the Proposer.

Subrogation Waiver. Proposer and Proposer's insurance carrier waive any and all rights to subrogation against Galveston County in regard to any suit or claim arising out of personal injury or property damage resulting from Proposer's performance under this agreement.

39. PROPOSAL GUARANTEE

Unless specified differently within the Special Provisions of this procurement, each Proposer shall be required to submit a Proposal guarantee with its Proposal as required within this Section.

Evidencing its firm commitment to engage in contract if Proposer is selected for award of contract, each Proposer is required to furnish with their Proposal a cashier's check or an acceptable Proposer's bond (generally, a Proposal bond) in the amount of five percent (5%) of the total contract price. If Proposer is using a bond, then the bond must be executed with a surety company authorized to do business in the State of Texas. Failure to furnish the Proposal guarantee in the proper form and amount, by the time set for opening of Proposals may be cause for rejection of the Proposal.

The cashier's check or Proposer bond (as applicable) will be returned to each respective unsuccessful Proposer(s) after the Commissioners' Court award of contract and shall be returned to the successful Proposer upon the completion and submission of all contract documents. Provided however, that the cashier's check or Proposer bond will be forfeited to the County as liquidated damages should successful Proposer fail to execute the contract within thirty (30) days after receiving notice of the acceptance of its Proposal.

40. PERFORMANCE AND PAYMENT BONDS (if required)

Successful Proposer, before beginning work, shall execute a performance bond and a payment bond, each of which must be in the amount of the contract. The required payment and performance bonds must each be executed by a corporate surety authorized to write surety bonds in the State of Texas and in accordance with Chapter 3503 of the Insurance Code (codified in 2005 and originally within Section 1, Chapter 87, Acts of the 56th Leg., R.S., 1959, and in Article 7.19-1, Vernon's Texas Insurance Code).

The performance and payment bonds must each clearly and prominently display on the bond or on an attachment to the bond:

- a.) The name, mailing address, physical address, and telephone number, including the area code, of the surety company to which any notice of claim should be sent; or
- b.) The toll-free telephone number maintained by the Texas Department of Insurance under Subchapter B, Chapter 521, Insurance Code, and a statement that the address of the surety company to which any notice of claim should be sent may be obtained from the Texas Department of Insurance by calling the toll free-telephone number.

The performance bond shall be solely for the protection of Galveston County, in the full amount of the

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contract, and conditioned on the faithful performance of the work in accordance with the plans, specifications, and contract documents. The payment bond is solely for the protection and use of payment bond beneficiaries who have a direct contractual relationship with the prime contractor or a subcontractor to supply labor or material, and in the amount of the contract.

The payment and performance bonds required to be furnished herein must be furnished before the contractor begins work and are a requirement for issuance of a Notice to Proceed. Such bonds must be furnished to the Galveston County Purchasing Agent within thirty (30) calendar days after the date of the full execution of the contract or, if applicable, as required under Chapter 2253, Government Code, whichever is earlier. Contractor's failure to provide the required payment and performance bonds within such time period shall constitute an event of default under this contract. Contractor shall not commence work until all applicable certificates of insurance, performance bonds, and payment bonds have been received and approved by the County Purchasing Agent and the Contractor receives notice to proceed in writing that has been issued by the County Purchasing Agent.

Additionally, if this request for Proposal is for the award of a public works contract, then compliance with Chapter 2253 of the Texas Government Code, which is known as the McGregor Act, is mandatory. Performance and payment bonds are required to be furnished in accordance with Chapter 2253 of the Texas Government Code. Proposer should familiarize itself with the entire provisions of Chapter 2253 of the Texas Government Code.

41. PATENT AND COPYRIGHT PROTECTION

The Proposer agrees at its sole expense to protect the County from claims involving infringement of patents, copyright, trademark, trade secret, or other intellectual property rights. **Proposer shall indemnify and save harmless the County of Galveston, its officers, employees, and agents, from liability of any nature and kind whatsoever, including without limitation cost and expenses, for or on account of any copyrighted, trademarked, trade secret, patented or un-patented invention, process, or article manufactured or used in the performance of the contract, or other intellectual property rights, including its use by the County.** Proposer also agrees that if Proposer is awarded this contract, that no work performed hereunder shall be subject to patent, copyright, or other intellectual property by Proposer.

42. CONFLICT OF INTEREST DISCLOSURE REPORTING (FORM CIQ)

Proposer may be required under Chapter 176 of the Texas Local Government Code to complete and file a Conflict-of-Interest Questionnaire (CIQ Form). The CIQ Form pertains to business relationship, gift giving and family relationship reporting. If Proposer is required to file a CIQ Form, then **the completed CIQ Form must be filed with the County Clerk of Galveston County, Texas.**

Business relationship. If Proposer has an employment or other business relationship with a local government officer of Galveston County or with a family member of a local government officer of Galveston County that results in the officer or family member of the officer receiving taxable income that exceeds \$2,500.00 during the preceding 12-month period, then Proposer **MUST** complete a CIQ Form and file the original of the CIQ Form with the County Clerk of Galveston County.

Gift-giving. If Proposer has given a local government officer of Galveston County or a family member of a local government officer of Galveston County one or more gifts with an aggregate value of more than

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one-hundred dollars (\$100.00) during the preceding 12-months, then Proposer **MUST** complete a CIQ Form and file the original of the CIQ Form with the County Clerk of Galveston County.

Family member. For purposes of the business relationship and gift giving reporting requirements, a “family member” means a person related to another person with the first degree of consanguinity or affinity, as described by Subchapter B, Chapter 573, Texas Government Code. Examples of persons within the first degree by consanguinity or affinity include a son, daughter, father, mother, spouse, son-in-law, daughter-in-law, father-in-law, mother-in-law, stepson, stepdaughter, stepmother, and stepfather.

Family relationship. If Proposer has a “family relationship” with a local government officer of Galveston County then Proposer **MUST** complete a CIQ Form and file the original of the CIQ Form with the County Clerk of Galveston County, regardless of whether Proposer has a business relationship or has given gifts to the local government officer or a family member of the local government officer. For this purpose, “family relationship” means Proposer is related within the third degree by consanguinity or the second degree by affinity, as those terms are defined under Chapter 573 of the Texas Government Code, to a local government officer of Galveston County. Examples of such relationships include a son, daughter, mother, father, brother, sister, grandchild, great-grandchild, grandparent, great-grandparent, niece, nephew, uncle, aunt, spouse, mother-in-law, father-in-law, daughter-in-law, son-in-law, spouse’s grandchild, spouse’s grandparent, grandparent’s spouse, grandchild’s spouse, stepson, stepdaughter, stepmother, and stepfather.

Proposer must file its original CIQ Form with the Galveston County Clerk. The Galveston County Clerk has offices at the following locations:

Galveston County Clerk
Galveston County Justice Center, Suite 2001
600 59th Street
Galveston, Texas 77551

Galveston County Clerk
North County Annex, 1st Floor
174 Calder Road
League City, Texas 77573

Again, if Proposer is required to file a CIQ Form, the original completed form is filed with the Galveston County Clerk (**not the Purchasing Agent**).

For Proposer’s convenience, a blank CIQ Form is enclosed with this Proposal package. Blank CIQ Form(s) may also be obtained by visiting the Purchasing Agent’s website. This website is linked from the Galveston County homepage, at <http://www.galvestoncountytexas.gov>.

Chapter 176 specifies deadlines for the filing of CIQ Forms (both initial filings and updated filings).

It is Proposer’s sole responsibility to file a true and complete CIQ Form with the Galveston County Clerk if Proposer is required to file by the requirements of Chapter 176 of the Local Government Code. Proposer is advised that it is an offense to fail to comply with the disclosure reporting requirements dictated under Chapter 176 of the Texas Local Government Code, and the failure to file may be grounds to void the contract, if Proposer is awarded a contract.

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If Proposer has any questions about compliance with Chapter 176, Proposer may wish to consult its' legal counsel. Compliance is the individual responsibility of each person, business, and agent who is subject to Chapter 176 of the Texas Local Government Code.

43. DISCLOSURE OF INTERESTED PARTIES / FORM 1295

Under Section 2252.908 of the Government Code, any business entity that enters into a contract with Galveston County that requires the approval of the Commissioners' Court must submit a "Disclosure of Interested Parties" to the County prior to the execution of the contract. This form, the "Disclosure of Interested Parties" form was promulgated by the Texas Ethics Commission and is the "Form 1295". **This procurement is subject to these requirements.**

The Texas Ethics Commission was charged with promulgating rules to implement Section 2252.908 of the Government Code. The rules adopted by the Texas Ethics Commission are located at Sections 46.1, 46.3, and 46.5 of Title 1 of the Texas Administrative Code. Thus, the law covering these requirements is located at Section 2252.908 of the Government Code, and in Title 1, Sections 46.1, 46.3, and 46.5 of the Texas Administrative Code.

The Texas Ethics Commission's website is: www.ethics.state.tx.us. The area of the Texas Ethics Commission website pertaining to Form 1295 is:

www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm.

Form 1295 must be completed electronically through the Texas Ethics Commission website (handwritten forms are not allowable). Once the business entity has completed their electronic filing of Form 1295, then the business entity must print out the electronically completed form, and sign and notarize the Form 1295. Once Form 1295 is signed and notarized, the business entity must submit their completed, signed, and notarized Form 1295 to the Galveston County Purchasing Agent.

Successful Proposer is and shall be subject to these requirements, and no resultant contract may be executed by the Commissioners' Court until the completed, signed, and notarized Form 1295 is on file with the County Purchasing Agent.

No portion of the Form 1295 process commits the County to any type of award of contract whatsoever.

After the Purchasing Agent's Office receives the completed, signed, and notarized Form 1295, the Purchasing Department representative will, within 30 days, go to the Texas Ethics Commission website to submit electronic confirmation of the County's receipt of the completed, signed, and notarized Form 1295.

44. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, PROPOSED DEBARMENT, AND OTHER RESPONSIBILITY MATTERS & REQUIREMENT TO REGISTER IN SAM

Proposer certifies that neither it, nor any of its Principals, are presently debarred, suspended, proposed for debarment, disqualified, excluded, or in any way declared ineligible for the award of contracts by any Federal agency. Contractor agrees that it shall refund Galveston County for any payments made to Contractor while ineligible. Contractor acknowledges that Contractor's uncured failure to perform under this Agreement, if such should occur, may result in Contractor being debarred from performing additional work for the County, the respecting State Agency administering the grant funding the contract, if

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applicable, the State, FEMA, or HUD (as applicable), and other Federal and State entities. Further, Proposer has executed the Certification Regarding Debarment, Suspension, Proposed Debarment, and Other Responsibility Matters and returned the fully completed and executed original certification with the submission of its Proposal.

The truthful and fully completed and executed original of the Certification Regarding Debarment, Suspension, Proposed Debarment, and Other Responsibility Matters must be included with the submission of Proposer's Proposal and is a mandatory requirement of this request for Proposal. Proposer's failure to include the fully completed and executed original of this Certification shall be considered non-compliance with the requirements of this request for Proposal and grounds for the rejection of Proposer's Proposal.

Proposer shall immediately notify the County Purchasing Agent if it becomes debarred or suspended, placed on the Consolidated List of Debarred Contractors, or in any other way becomes ineligible for award of contract by any Federal agency. This Certification is a material fact relied upon by Galveston County; if it is later determined that the contractor did not comply with 2 C.F.R. Part 180 and 2 C.F.R. Part 3000, in addition to the remedies available to Galveston County and the State agency administering this grant, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment of contractor.

If the contract to be awarded pursuant to this procurement involves the use of Federal funds, then Proposer must also be registered in the Federal Contractor Registry through the System for Award Management (SAM) to be eligible for award of contract pursuant to this procurement.

Information regarding the SAM is available at:

<http://www.federalcontractorregistry.com/?gclid=CIG1hf2rr8wCFYkCaQoducANZw> or at
<https://www.sam.gov/portal/SAM/#1>.

No contract involving the use of Federal funds may be awarded to any Proposer unless and until such registration is current and in good standing under SAM. Successful Proposer must maintain SAM registration throughout the entire term of the agreement with the County. If this contract involves the use of Federal funds, then Proposer must enclose proof of such SAM registration within its response, which is also a mandatory requirement of this procurement; failure to enclose such proof shall be considered non-compliance with the requirements of this procurement and grounds for the rejection of Proposer's response to this procurement (i.e., Proposal, Proposal, or qualifications statement, as applicable).

45. TRANSACTIONS WITH TERRORIST ORGANIZATIONS PROHIBITED

(Texas Government Code 2252.151; 2252.152) Prohibition on contracts with certain companies per Government Code 2252.151 Definitions:

(1)“**Company**” has the meaning assigned by Section 806.001.

(2)“**Foreign terrorist organization**” means an organization designated as a foreign terrorist organization by the United States secretary of state as authorized by 8 U.S.C. Section 1189.

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(3)“**Governmental contract**” means a contract awarded by a governmental entity for general construction, an improvement, a service, or a public works project for a purchase of supplies, materials, or equipment. The term includes a contract to obtain a professional or consulting service subject to Government Code, Chapter 2254.

(4)“**Governmental entity**” has the meaning assigned by Government Code, Section 2252.001.

Pursuant to Chapter 2252, Texas Government Code, Contractor shall certify that, at the time of execution of this Contract, neither the Contractor, nor any wholly owned subsidiary, majority-owned subsidiary, parent company or affiliate of the same (1) engages in business with Iran, Sudan, or any foreign terrorist organization as described in Chapters 806 or 807 of the Texas Government Code, or Subchapter F of Chapter 2252 of the Texas Government Code, or (2) is a company listed by the Texas Comptroller of Public Accounts under Sections 806.051, 807.051, or 2252.153 of the Texas Government Code.

46. VERIFICATION NOT TO BOYCOTT ISRAEL

Prohibition on contracts with companies boycotting Israel per Government Code 2271.001 Definitions:

(1) "**Boycott Israel**" has the meaning assigned by Section 808.001.

(2) "**Company**" has the meaning assigned by Section 808.001; except that the term does not include a sole proprietorship.

(2) "**Governmental entity**" has the meaning assigned by Government Code, Section 2251.001.

PROVISION REQUIRED IN CONTRACT. (a) This section applies only to a contract that:

(1) is between a governmental entity and a company with 10 or more full-time employees; and

(2) has a value of \$100,000 or more that is to be paid wholly or partly from public funds of the governmental entity.

(b) A governmental entity may not enter into a contract with a company for goods or services unless the contract contains a written verification from the company that it:

(1) does not boycott Israel; and

(2) will not boycott Israel during the term of the contract.

As required by GOVERNMENT CODE, CHAPTER 2271, **CONTRACTOR hereby verifies that it does not boycott Israel and will not boycott Israel throughout the term of this Agreement.** For the purposes of this verification, “Boycott Israel” means refusing to deal with, terminating business activities, or otherwise taking any action that is intended to penalize, inflict economic harm on, or limit commercial relations specifically with Israel, or a person or entity doing business in Israel or in an Israeli-controlled territory, but does not include an action made for ordinary business purposes.

47. SOVEREIGN IMMUNITY

The County specifically reserves any claim it may have to sovereign, qualified, or official immunity as a defense to any action arising in conjunction with this contract.

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48. CONTROLLING LAW AND VENUE

Proposer acknowledges and agrees that the contract is and shall be governed and construed by the laws of the State of Texas and that venue shall lie exclusively in a court of competent jurisdiction in Galveston County, Texas.

49. MERGERS, ACQUISITIONS

The Proposer shall be required to notify the County of any potential for merger or acquisition of which there is knowledge at the time that a Proposal is submitted.

If subsequent to the award of any contract resulting from this request for Proposal the Proposer shall merge or be acquired by another firm, the following documents must be submitted to the County:

- A. Corporate resolutions prepared by the awarded Proposer and the new entity ratifying acceptance of the original contract, terms, conditions and prices;
- B. New entity's Federal Identification Number (FEIN);
- C. New entity's proposed operating plans;
- D. New entity's proof of registration in SAM for contracts involving Federal funds;
- E. New entity's certification regarding debarment;
- F. New entity's certification regarding lobbying; and
- G. W-9 Form for new entity

Moreover, Proposer is required to provide the County with notice of any anticipated merger or acquisition as soon as Proposer has actual knowledge of the anticipated merger or acquisition. The New Proposer's proposed plan of operation must be submitted prior to merger to allow time for submission of such plan to the Commissioners' Court for its approval.

50. DELAYS

The County reserves the right to delay the scheduled commencement date of the contract if it is to the advantage of the County. There shall be no additional costs attributed to these delays should any occur. Proposer agrees it will make no claims for damages, for damages for lost revenues, for damages caused by breach of contract with third parties, or any other claim by Proposer attributed to these delays, should any occur. In addition, Proposer agrees that any contract it enters into with any third party in anticipation of the commencement of the contract will contain a statement that the third party will similarly make no claim for damages based on delay of the scheduled commencement date of the contract.

51. ACCURACY OF DATA

Information and data provided through this request for Proposal are believed to be reasonably accurate.

52. SUBCONTRACTING/ASSIGNMENT

Proposer shall not assign, sell, or otherwise transfer its contract in whole or in part without prior written permission of the County acting by and through its Commissioners' Court. Such consent, if granted, shall not relieve the Proposer of any of its responsibilities under this contract.

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53. INDEPENDENT CONTRACTOR

Proposer expressly acknowledges that it is an independent contractor. Nothing in this agreement is intended nor shall be construed to create an agency relationship, an employer/employee relationship, a joint venture relationship, or any other relationship allowing County to exercise control or direction over the manner or method by which Proposer or Proposer's subcontractors perform in providing the requirements stated in the request for Proposal.

54. MONITORING PERFORMANCE

The County shall have the unfettered right to monitor and audit the Proposer's work in every respect. In this regard, the Proposer shall provide its full cooperation and ensure the cooperation of its employees, agents, assigns, and subcontractors. Further, the Proposer shall make available for inspection and/or copying when requested, original data, records, and accounts relating to the Proposer's work and performance under this contract. In the event any such material is not held by the Proposer in its original form, a true copy shall be provided.

55. SUBJECT TO APPROPRIATION OF FUNDS

State law prohibits the obligation and expenditure of public funds beyond the fiscal year for which a budget has been approved by the Commissioners' Court. Galveston County anticipates this to be an integral part of future budgets to be approved during the periods of this contract, except for unanticipated needs or events which may prevent such payments against this contract. However, Galveston County cannot guarantee the availability of funds, and enters into this contract only to the extent such funds are made available through appropriation (allocation) by the Commissioners' Court. This contract shall not be construed as creating any debt on behalf of the County of Galveston in violation of TEX. CONST. art. XI, § 7, and it is understood that all obligations of Galveston County are subject to the availability of funds.

56. CONTRACTS SUBJECT TO GRANT FUNDING

Notwithstanding the foregoing, if the contract to be awarded by this procurement is funded with Federal or State grant funds, the Proposer acknowledges that the obligations of the County under the contract are contingent upon the continued availability of grant funding to meet the County's obligations. If the grant(s) to the County is reduced, de-obligated, or otherwise discontinued or terminated, Contractor agrees that the County may immediately terminate the contract without penalty or any liability whatsoever on the part of the County, the State, or the Federal awarding agency.

57. PROCUREMENT ETHICS

Galveston County is committed to the highest ethical standards. Therefore, it is a serious breach of the public trust to subvert the public purchasing process by directing purchases to certain favored vendors, or to tamper with the competitive Proposal process, whether it's done for kickbacks, friendship or any other reason. Since misuse of the purchasing power of a local government carries criminal penalties, and many such misuses are from a lack of clear guidelines about what constitutes an abuse of office, the Code of Ethics outlined below must be strictly followed.

Galveston County also requires ethical conduct from those who do business with the County.

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CODE OF ETHICS – Statement of Purchasing Policy:

Public employment is a public trust. It is the policy of Galveston County to promote and balance the objective of protecting the County's integrity and the objective of facilitating the recruitment and retention of personnel needed by Galveston County. Such policy is implemented by prescribing essential standards of ethical conduct without creating unnecessary obstacles to entering public office.

Public employees must discharge their duties impartially so as to assure fair competitive access to governmental procurement by responsible contractors. Moreover, they should conduct themselves in such a manner as to foster public confidence in the integrity of the Galveston County procurement organization. To achieve the purpose of this Article, it is essential that those doing business with Galveston County also observe the ethical standards prescribed herein.

General Ethical Standards:

It shall be a breach of ethics to attempt to realize personal gain through public employment with Galveston County by any conduct inconsistent with the proper discharge of the employee's duties.

It shall be a breach of ethics to attempt to influence any public employee of Galveston County to breach the standards of ethical conduct set forth in this code.

It shall be a breach of ethics for any employee of Galveston County to participate directly or indirectly in a procurement when the employee knows that:

- The employee or any member of the employee's family, has a financial interest pertaining to the procurement;
- A business or organization in which the employee or any member of the employee's family, has a financial interest pertaining to the procurement; or
- Any other person, business, or organization with which the employee or any member of the employee's family is negotiating or has an arrangement concerning prospective employment is involved in the procurement.

Gratuities:

It shall be a breach of ethics for any person to offer, give, or agree to give any employee or former employee of Galveston County, or for any employee or former employee of Galveston County to solicit, demand, accept or agree to accept from another person, a gratuity or an offer of employment in connection with any decision, approval, disapproval, recommendation, preparation of any part of a program requirement or a purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, auditing, or in any other advisory capacity in any proceeding or application, request for ruling, determination, claim or controversy, or other particular matter, pertaining to any program requirement or a contract or subcontract, or to any solicitation or Proposal pending before this government.

Kickbacks:

It shall be a breach of ethics for any payment, gratuity or offer of employment to be made by or on behalf of a subcontractor under a contract to the prime contractor or higher tier subcontractor for any contract for Galveston County, or to any person associated therewith, as an inducement for the award of a contract, subcontract or order.

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Contract Clause:

The prohibition against gratuities and kickbacks prescribed above shall be conspicuously set forth in every contract and solicitation by Galveston County.

Confidential Information:

It shall be a breach of ethics for any employee or former employee of Galveston County to knowingly use confidential information for actual or anticipated personal gain, or for the actual or anticipated gain of any other person.

Prohibition against Contingent Fees:

It shall be a breach of ethical standards for a person to be retained, or to retain a person, to solicit or secure a Galveston County contract upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, except for retention of bona fide employees or bona fide established commercial selling agencies for the purpose of securing business. Failure to abide by this section constitutes a breach of ethical standards.

Representation:

Proposer represents and warrants, by signing and submitting its Proposal, that it has not retained anyone in violation of this section prohibiting contingent fees.

Contract Clause:

The representation prescribed above shall be conspicuously set forth in every contract and solicitation thereof.

58. NON-COLLUSION AFFIDAVIT

Proposer certifies, by signing and submitting a Proposal, that the Proposal is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the Proposal is genuine and not collusive or sham; that the contractor has not directly or indirectly induced or solicited another contractor to put in a false or sham Proposal, and has not directly or indirectly colluded, conspired, connived, or agreed with any contractor or anyone else to put in a sham Proposal or that anyone shall refrain from proposing; that the contractor has not in any manner, directly or indirectly, sought by agreement, communications, or conference with anyone to fix the Proposal price of the contractor or any other Proposer, or to fix any overhead, profit or cost element of the Proposal price, or that of any other contractor, or to secure any advantage against the public body awarding the contract or anyone interested in the proposed contract; that all statements contained in the Proposal are true; and further, that the contractor has not, directly or indirectly, submitted his or her Proposal price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any cooperation, partnership, company association, organization, Proposal depository, or to any member or agent thereof to effectuate a collusive or sham Proposal.

A blank Non-Collusion Affidavit is included with this Proposal packet. Proposer must enclose a truthful and fully executed original Non-Collusion Affidavit with the submission of its Proposal. This is a mandatory requirement of this request for Proposal. Failure to include the truthfully and fully executed Non-Collusion Affidavit in the submission of its Proposal shall be considered non-compliance with the requirements of this request for Proposal by the Proposer and grounds for the rejection of Proposer's submission.

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No negotiations, decisions, or actions shall be initiated by any company as a result of any verbal discussion with any County employee prior to the opening of responses to this request for Proposal.

No officer or employee of the County of Galveston, and no other public or elected official, or employee, who may exercise any function or responsibilities in the review or approval of this undertaking shall have any personal or financial interest, direct or indirect, in any contract or negotiation process thereof. The above compliance request will be part of all County of Galveston contracts for this service.

59. CERTIFICATION REGARDING LOBBYING – COMPLIANT WITH APPENDIX A TO 24 C.F.R. PART 871

Proposer certifies that, to the best of his or her knowledge and belief, that:

- a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the Proposer, to any person for influencing or attempting to influence a department or employee of an agency, a member of Congress, or an employee of a member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan or cooperative agreement.
- b. If any funds other than federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence a department or employee of any agency, a member of Congress, a department or employee of congress, or an employee of a member of Congress in connection with this federal contract, grant, loan, or cooperative agreement, **the Proposer shall complete and submit Standard Form LLL, “Disclosure Form to Report Lobbying”, in accordance with its instructions.**
- c. Proposer shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, sub-grants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of the certification is a prerequisite for making or entering into a contract with Proposer and is imposed by Section 1352, Title 31, United States Code. Further, any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

The truthful and fully completed and executed original of the Certification Regarding Lobbying (included with Proposal packet) must be included with the submission of Proposer’s Proposal and is a mandatory requirement of this request for Proposal. Proposer’s failure to include the fully completed and executed or original of this Certification shall be considered non-compliant with the requirements of this request for Proposal and grounds for the rejection of the Proposer’s Proposal.

60. NON-DISCRIMINATION

- a. **Equal Employment Opportunity:** Proposer will not discriminate against any employee or applicant for employment because of race, color, religion, national origin, sex, disability, genetic information or veteran status. Proposer will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, national origin, sex, disability,

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genetic information or veteran status. Such action shall include, but not be limited to, the following: employment; upgrading; demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. Proposer agrees to post in conspicuous places, available to employees and applicants for employment, notices of employment.

Proposer will, in all solicitation or advertisements for employees placed by or on behalf of Proposer, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, national origin, sex, disability, genetic information, or veteran status. Proposer will cause the foregoing provisions to be inserted in all subcontracts for any work covered by this Agreement so that such provisions will be binding upon each subcontractor, provided that the foregoing provisions shall not apply to contracts or subcontracts for standard commercial supplies or raw materials.

Proposer will include the provisions herein in every subcontract or purchase order unless exempted.

- b. Drug Free Work Place Act: Proposer shall comply with all applicable requirements of the Drug-Free Workplace Act of 1988 (Public Law 100-690, Title V, Subtitle D; 41 U.S.C. § 8102, et seq.) and implementing regulations thereunder.
- c. Americans with Disabilities Act: Proposer shall comply with all applicable provisions of the Americans with Disabilities Act of 1990 (Public Law 101-136) and implementing regulations thereunder.
- d. OSHA Regulations: Proposer agrees to maintain and to display any applicable materials for its employees in accordance with OSHA regulations.
- e. Compliance with Immigration Laws and Use of E-Verify: Proposer agrees to comply with all requirements of the U.S. Immigration Reform and Control Act of 1986, as amended, and any implementing regulations thereto. Proposer further agrees to utilize the E-Verify system through the Department of Homeland Security on its employees. Proposer shall not employ unauthorized aliens and shall not assign services to be performed to any supplier or subcontractor who are unauthorized aliens. If any personnel performing any services hereunder are discovered to be an unauthorized alien, then Proposer will immediately remove such personnel from performing services hereunder and shall replace such personnel with personnel who are not unauthorized alien(s).
- f. State and Federal Law Compliance: Proposer agrees to comply with all other State and Federal laws and regulations applicable to the provision of services under this contract.
- g. The Contractor shall comply with the Age Discrimination Act of 1975 which provides that no person in the United States shall on the basis of age be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance.

61. RECORD RETENTION AND RIGHT TO AUDIT

Proposer shall keep and maintain all records associated with this contract for a minimum of five (5) years from the close of the contract or as required by Federal or State law or regulation, whichever period is longer. If awarded this contract, Proposer shall allow the County reasonable access to the records in Proposer's possession, custody, or control that the County deems necessary to assist it in auditing the services, costs, and payments provided hereunder. If this contract involves the use of Federal or State funds, then Proposer shall also allow reasonable access to representatives of the Office of Inspector

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General, the General Accounting Office, the State Auditor's Office, and the other Federal and/or State agencies overseeing the funds that such entities deem necessary to facilitate review by such agencies and Proposer shall maintain fiscal records and supporting documentation for all expenditures in a manner that conforms with OMB Circular A-87 (relocated to 2 C.F.R. Part 225) and this contract.

62. TITLE VI ASSURANCES/TxDOT

The County is subject to Title VI of the Civil Rights Act of 1964 and the Federal and State laws and regulations of the United States Department of Transportation and Texas Department of Transportation (TxDOT).

Pursuant to these requirements, the County must have its contractors provide required assurances on compliance with non-discrimination by itself and its subcontractors. The Title VI Assurances within this Subsection are not exhaustive – whenever any Federal, State, or Local requirement requires additional clauses, this list shall not be construed as limiting. Contractor agrees as follows:

- (1) **Compliance with Regulations:** The Contractor shall comply with the Regulations relative to nondiscrimination in Federally assisted programs of the Department of Transportation (hereinafter, DOT) Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time (hereinafter referred to as the Regulations), which are incorporated herein by reference and made a part of this contract.
- (2) **Non-discrimination:** The Contractor, with regard to the work performed by it during the contract, shall not discriminate on the basis of race, color, national origin, religion, sex, age, disability or Veteran status in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The Contractor shall not participate either directly or indirectly in the discrimination prohibited by Section 21.5 of the Regulations, including employment practices when the contract covers a program set forth in Appendix B of the Regulations.
- (3) **Solicitations for Subcontractors, Including Procurement of Materials and Equipment:** In all solicitations either by competitive bidding or negotiation made by the Contractor for work to be performed under a subcontract, including procurement of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the Contractor of the Contractor's obligations under this contract and the Regulations relative to nondiscrimination on the grounds of race, color, national origin, religion, sex, age, disability or Veteran status.
- (4) **Information and Reports:** The Contractor shall provide all information and reports required by the Regulations or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information and its facilities as may be determined by the Galveston County or the Texas Department of Transportation to be pertinent to ascertain compliance with such Regulations, orders and instructions. Where any information required of the Contractor is in the exclusive possession of another who fails or refuses to furnish this information the Contractor shall so certify to Galveston County or the Texas Department of Transportation as appropriate and shall set forth what efforts it has made to obtain the information.
- (5) **Sanctions for Non-compliance:** In the event of the Contractor's noncompliance with the nondiscrimination provisions of this contract, Galveston County shall impose such contract sanctions as it or the Texas Department of Transportation may determine to be appropriate, including, but not limited to:

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- (a) withholding of payments to the Contractor under the contract until the Contractor complies, and/or;
- (b) cancellation, termination, or suspension of the contract, in whole or in part.

(6) Incorporation of Provisions. The Contractor shall include the provisions of paragraphs (1) through (6) in every subcontract, including procurement of materials and leases of equipment, unless exempt by the Regulations, or directives issued pursuant thereto. The Contractor shall take such action with respect to any subcontract or procurement as Galveston County or the Texas Department of Transportation may direct as a means of enforcing such provisions including sanctions for non-compliance: Provided, however, that, in the event Contractor becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the Contractor may request Galveston County to enter into such litigation to protect the interests of Galveston County, and, in addition, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

63. ASSURANCES FOR CONSTRUCTION PROGRAMS - TEXAS GENERAL LAND OFFICE (GLO)

The County is subject to Federal and State laws and regulations of the United States and The Texas General Land Office (GLO). Pursuant to these requirements, the County must have its contractors provide required assurances on compliance with non-discrimination by itself and its subcontractors. These Assurances within this Subsection are not exhaustive – whenever any Federal, State, or Local requirement requires additional clauses, this list shall not be construed as limiting. Contractor agrees as follows:

- (1) Will comply with the Intergovernmental Personnel Act of 1970 (42 U.S.C. §§4728-4763) relating to prescribed standards for merit systems for programs funded under one of the 19 statutes or regulations specified in Appendix A of OPM's Standards for a Merit System of Personnel Administration (5 C.F.R. 900, Subpart F).
- (2) Will comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §§4801 et seq.) which prohibits the use of lead-based paint in construction or rehabilitation of residence structures.
- (3) Will comply with all Federal statutes relating to non-discrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. §§1681-1683, and 1685-1686), which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. §794), which prohibits discrimination on the basis of handicaps; (d) the Age Discrimination Act of 1975, as amended (42 U.S.C. §§6101-6107), which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended, relating to nondiscrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) §§523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. §§290 dd-3 and 290 ee-3), as amended, relating to confidentiality of

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alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing; (i) any other non-discrimination provisions in the specific statute(s) under which application for Federal assistance is being made; and (j) the requirements of any other nondiscrimination statute(s) which may apply to the application.

- (4) Will comply with the Intergovernmental Personnel Act of 1970 (42 U.S.C. §§4728-4763) relating to prescribed standards for merit systems for programs funded under one of the 19 statutes or regulations specified in Appendix A of OPM's Standards for a Merit System of Personnel Administration (5 C.F.R. 900, Subpart F).
- (5) Will comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §§4801 et seq.) which prohibits the use of lead-based paint in construction or rehabilitation of residence structures.
- (6) Will comply with all Federal statutes relating to non-discrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. §§1681-1683, and 1685-1686), which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. §794), which prohibits discrimination on the basis of handicaps; (d) the Age Discrimination Act of 1975, as amended (42 U.S.C. §§6101-6107), which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended, relating to nondiscrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) §§523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. §§290 dd-3 and 290 ee-3), as amended, relating to confidentiality of alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing; (i) any other non-discrimination provisions in the specific statute(s) under which application for Federal assistance is being made; and (j) the requirements of any other nondiscrimination statute(s) which may apply to the application.
- (7) Will comply, or has already complied, with the requirements of Titles II and III of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal and federally assisted programs. These requirements apply to all interests in real property acquired for project purposes regardless of Federal participation in purchases.
- (8) Will comply with the provisions of the Hatch Act (5 U.S.C. §§1501-1508 and 7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.

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- (9) Will comply, as applicable, with the provisions of the Davis- Bacon Act (40 U.S.C. §§276a to 276a-7), the Copeland Act (40 U.S.C. §276c and 18 U.S.C. §874), and the Contract Work Hours and Safety Standards Act (40 U.S.C. §§327-333) regarding labor standards for federally assisted construction sub agreements.
- (10) Will comply with flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is \$10,000 or more.
- (11) Will comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplains in accordance with EO 11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. §§1451 et seq.); (f) conformity of Federal actions to State (Clean Air) Implementation Plans under Section 176(c) of the Clean Air Act of 1955, as amended (42 U.S.C. §§7401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended (P.L. 93-523); and, (h) protection of endangered species under the Endangered Species Act of 1973, as amended (P.L. 93205).
- (12) Will comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. §§1271 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.
- (13) Will assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. §470), EO 11593 (identification and protection of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. §§469a-1 et seq.).
- (14) Will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act Amendments of 1996 and OMB Circular No. A-133, "Audits of States, Local Governments, and Non-Profit Organizations."
- (15) Will comply with all applicable requirements of all other Federal laws, executive orders, regulations, and policies governing this program.
- (16) Will comply with the requirements of Section 106(g) of the Trafficking Victims Protection Act (TVPA) of 2000, as amended (22 U.S.C. 7104) which prohibits grant award recipients or a sub-recipient from (1) Engaging in severe forms of trafficking in persons during the period of time that the award is in effect (2) Procuring a commercial sex act during the period of time that the award is in effect or (3) Using forced labor in the performance of the award or subawards under the award.

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64. GENERAL AFFIRMATIONS – TEXAS GENERAL LAND OFFICE (GLO)

To the extent they apply, affirms, and agrees to the following, without exception:

1. represents and warrants that, in accordance with Section 2155.005 of the Texas Government Code, neither nor the firm, corporation, partnership, or institution represented by , or anyone acting for such a firm, corporation, partnership, or institution has (1) violated any provision of the Texas Free Enterprise and Antitrust Act of 1983, Chapter 15 of the Texas Business and Commerce Code, or the federal antitrust laws, or (2) communicated directly or indirectly the contents of this Contract or any solicitation response upon which this Contract is based to any competitor or any other person engaged in the same line of business as .
2. If the Contract is for services, shall comply with Section 2155.4441 of the Texas Government Code, requiring the purchase of products and materials produced in the State of Texas in performing service contracts.
3. Under Section 231.006 of the Family Code, the vendor or applicant [] certifies that the individual or business entity named in this Contract, bid or application is not ineligible to receive the specified grant, loan, or payment and acknowledges that this Contract may be terminated and payment may be withheld if this certification is inaccurate.
4. A bid or an application for a contract, grant, or loan paid from state funds must include the name and social security number of the individual or sole proprietor and each partner, shareholder, or owner with an ownership interest of at least 25 percent of the business entity submitting the bid or application. certifies it has submitted this information to the GLO.
5. If the Contract is for the purchase or lease of computer equipment, as defined by Texas Health and Safety Code Section 361.952(2), certifies that it is in compliance with Subchapter Y, Chapter 361 of the Texas Health and Safety Code, related to the Computer Equipment Recycling Program and the Texas Commission on Environmental Quality rules in Title 30 Texas Administrative Code Chapter 328.
6. Pursuant to Section 2155.003 of the Texas Government Code, represents and warrants that it has not given, offered to give, nor intends to give at any time hereafter any economic opportunity, future employment, gift, loan, gratuity, special discount, trip, favor, or service to a public servant in connection with the Contract.
7. Payments due under the Contract shall be directly applied towards eliminating any debt or delinquency owes to the State of Texas including, but not limited to, delinquent taxes, delinquent student loan payments, and delinquent child support.
8. Upon request of the GLO, shall provide copies of its most recent business continuity and disaster recovery plans.
9. If the Contract is for consulting services governed by Texas Government Code Chapter 2254, Subchapter B, in accordance with Section 2254.033 of the Texas Government Code, relating to consulting services, certifies that it does not employ an individual who has been employed by The GLO or another agency at any time during the two years preceding the 's submission of its offer to provide consulting services to the GLO or, in the alternative, , in its offer to provide consulting services to the GLO, disclosed the following: (i) the nature of the previous employment with the GLO or other state agency; (ii) the date

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the employment was terminated; and (iii) the annual rate of compensation for the employment at the time of its termination.

10. If the Contract is not for architecture, engineering, or construction services, except as otherwise provided by statute, rule, or regulation, must use the dispute resolution process provided for in Chapter 2260 of the Texas Government Code to attempt to resolve any dispute arising under the Contract. NOTHING IN THIS SECTION SHALL BE CONSTRUED AS A WAIVER OF SOVEREIGN IMMUNITY BY THE GLO.
11. If the Contract is for architecture, engineering, or construction services, subject to Texas Government Code, Section 2260.002 and Texas Civil Practice and Remedies Code Chapter 114, and except as otherwise provided by statute, rule, or regulation, shall use the dispute resolution process provided for in Chapter 2260 of the Texas Government Code to attempt to resolve all disputes arising under this Contract. Except as otherwise provided by statute, rule, or regulation, in accordance with the Texas Civil Practice and Remedies Code, Section 114.005, claims encompassed by Texas Government Code, Section 2260.002(3) and Texas Civil Practice and Remedies Code Section 114.002 shall be governed by the dispute resolution process set forth below in subsections (a)-(d). NOTHING IN THIS SECTION SHALL BE CONSTRUED AS A WAIVER OF SOVEREIGN IMMUNITY BY THE GLO.
 - a. Notwithstanding Texas Government Code, Chapter 2260.002(3) and Chapter 114.012 and any other statute or applicable law, if the 's claim for breach of contract cannot be resolved by the parties in the ordinary course of business, may make a claim against the GLO for breach of contract and the GLO may assert a counterclaim against the as is contemplated by Texas Government Code, Chapter 2260, Subchapter B. In such event, must provide written notice to the GLO of a claim for breach of the Contract not later than the 180th day after the date of the event giving rise to the claim. The notice must state with particularity: (1) the nature of the alleged breach; (2) the amount the seeks as damages; and (3) the legal theory of recovery.
 - b. The chief administrative officer, or if designated in the Contract, another officer of the GLO, shall examine the claim and any counterclaim and negotiate with the in an effort to resolve them. The negotiation must begin no later than the 120th day after the date the claim is received, as is contemplated by Texas Government Code, Chapter 2260, Section 2260.052.
 - c. If the negotiation under paragraph (b) above results in the resolution of some disputed issues by agreement or in a settlement, the parties shall reduce the agreement or settlement to writing and each party shall sign the agreement or settlement. A partial settlement or resolution of a claim does not waive a party's rights under this Contract as to the parts of the claim that are not resolved.
 - d. If a claim is not entirely resolved under paragraph (b) above, on or before the 270th day after the date the claim is filed with the GLO, unless the parties agree in writing to an extension of time, the parties may agree to mediate a claim made under this dispute resolution procedure. This dispute resolution procedure is the 's sole and exclusive process for seeking a remedy for an alleged breach of contract by the GLO if the parties are unable to resolve their disputes as described in this section.
 - e. Nothing in the Contract shall be construed as a waiver of the state's or the GLO's sovereign immunity. This Contract shall not constitute or be construed as a waiver of any of the privileges, rights, defenses, remedies, or immunities available to the State of Texas. The failure to enforce, or any delay in the enforcement, of any privileges, rights, defenses, remedies, or immunities available

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to the State of Texas under this Contract or under applicable law shall not constitute a waiver of such privileges, rights, defenses, remedies or immunities or be considered as a basis for estoppel. The GLO does not waive any privileges, rights, defenses, or immunities available to it by entering into this Contract or by its conduct, or by the conduct of any representative of the GLO, prior to or subsequent to entering into this Contract.

- f. Except as otherwise provided by statute, rule, or regulation, compliance with the dispute resolution process provided for in Texas Government Code, Chapter 2260, subchapter B and incorporated by reference in subsection (a)-(d) above is a condition precedent to the: (1) filing suit pursuant to Chapter 114 of the Civil Practices and Remedies Code; or (2) initiating a contested case hearing pursuant to Subchapter C of Chapter 2260 of the Texas Government Code.
12. If Texas Government Code Chapter 2270 prohibiting state contracts with companies boycotting Israel applies to and this Contract, then verifies it does not boycott Israel and will not boycott Israel during the term of this Contract.
13. This Contract is contingent upon the continued availability of lawful appropriations by the Texas Legislature. understands that all obligations of the GLO under this Contract are subject to the availability of state funds. If such funds are not appropriated or become unavailable, the GLO may terminate the Contract. The Contract shall not be construed as creating a debt on behalf of the GLO in violation of Article III, Section 49a of the Texas Constitution.
14. certifies that it is not listed on the federal government's terrorism watch list as described in Executive Order 13224.
15. In accordance with Section 669.003 of the Texas Government Code, relating to contracting with the executive head of a state agency, certifies that it is not (1) the executive head of the GLO, (2) a person who at any time during the four years before the effective date of the Contract was the executive head of the GLO, or (3) a person who employs a current or former executive head of the GLO.
16. represents and warrants that all statements and information prepared and submitted in connection with this Contract are current, complete, true, and accurate. Submitting a false statement or making a material misrepresentation during the performance of this Contract is a material breach of contract and may void the Contract or be grounds for its termination.
17. Pursuant to Section 2155.004(a) of the Texas Government Code, certifies that neither nor any person or entity represented by has received compensation from the GLO to participate in the preparation of the specifications or solicitation on which this Contract is based. Under Section 2155.004(b) of the Texas Government Code, certifies that the individual or business entity named in this Contract is not ineligible to receive the specified contract and acknowledges that the Contract may be terminated and payment withheld if this certification is inaccurate. This Section does not prohibit from providing free technical assistance.
18. represents and warrants that it is not engaged in business with Iran, Sudan, or a foreign terrorist organization, as prohibited by Section 2252.152 of the Texas Government Code.
19. If the Contract is for professional or consulting services governed by Texas Government Code Chapter 2254, represents and warrants that none of its employees including, but not limited to, those authorized

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- to provide services under the Contract, were former employees of the GLO during the twelve (12) month period immediately prior to the date of execution of the Contract.
20. The Contract shall be governed by and construed in accordance with the laws of the State of Texas, without regard to the conflicts of law provisions. The venue of any suit arising under the Contract is fixed in any court of competent jurisdiction of Travis County, Texas, unless the specific venue is otherwise identified in a statute which directly names or otherwise identifies its applicability to the GLO.
 21. IF THE CONTRACT IS NOT FOR ARCHITECTURE OR ENGINEERING SERVICES GOVERNED BY TEXAS GOVERNMENT CODE CHAPTER 2254, , TO THE EXTENT ALLOWED BY LAW, SHALL DEFEND, INDEMNIFY AND HOLD HARMLESS THE STATE OF TEXAS AND THE GLO, AND/OR THEIR OFFICERS, AGENTS, EMPLOYEES, REPRESENTATIVES, CONTRACTORS, ASSIGNEES, AND/OR DESIGNEES FROM ANY AND ALL LIABILITY, ACTIONS, CLAIMS, DEMANDS, OR SUITS, AND ALL RELATED COSTS, ATTORNEY FEES, AND EXPENSES ARISING OUT OF, OR RESULTING FROM ANY ACTS OR OMISSIONS OF OR ITS AGENTS, EMPLOYEES, SUBCONTRACTORS, ORDER FULFILLERS, OR SUPPLIERS OF SUBCONTRACTORS IN THE EXECUTION OR PERFORMANCE OF THE CONTRACT AND ANY PURCHASE ORDERS ISSUED UNDER THE CONTRACT. THE DEFENSE SHALL BE COORDINATED BY WITH THE OFFICE OF THE TEXAS ATTORNEY GENERAL WHEN TEXAS STATE AGENCIES ARE NAMED DEFENDANTS IN ANY LAWSUIT AND MAY NOT AGREE TO ANY SETTLEMENT WITHOUT FIRST OBTAINING THE CONCURRENCE FROM THE OFFICE OF THE TEXAS ATTORNEY GENERAL. AND THE GLO SHALL FURNISH TIMELY WRITTEN NOTICE TO EACH OTHER OF ANY SUCH CLAIM.
 22. IF THE CONTRACT IS FOR ARCHITECTURE OR ENGINEERING SERVICES GOVERNED BY TEXAS GOVERNMENT CODE CHAPTER 2254, , TO THE EXTENT ALLOWED BY LAW, SHALL INDEMNIFY AND HOLD HARMLESS THE STATE OF TEXAS AND THE GLO, AND/OR THEIR OFFICERS, AGENTS, EMPLOYEES, REPRESENTATIVES, CONTRACTORS, ASSIGNEES, AND/OR DESIGNEES FROM ANY AND ALL LIABILITY, ACTIONS, CLAIMS, DEMANDS, OR SUITS, AND ALL RELATED DAMAGES, COSTS, ATTORNEY FEES, AND EXPENSES TO THE EXTENT CAUSED BY, ARISING OUT OF, OR RESULTING FROM ANY ACTS OF NEGLIGENCE, INTENTIONAL TORTS, WILLFUL MISCONDUCT, PERSONAL INJURY OR DAMAGE TO PROPERTY, AND/OR OTHERWISE RELATED TO 'S PERFORMANCE, AND/OR FAILURES TO PAY A SUBCONTRACTOR OR SUPPLIER BY THE OR ITS AGENTS, EMPLOYEES, SUBCONTRACTORS, ORDER FULFILLERS, CONSULTANTS UNDER CONTRACT TO , OR ANY OTHER ENTITY OVER WHICH THE CONTRACTOR EXERCISES CONTROL, OR SUPPLIERS OF SUBCONTRACTORS IN THE EXECUTION OR PERFORMANCE OF THE CONTRACT. THE DEFENSE SHALL BE COORDINATED BY WITH THE OFFICE OF THE TEXAS ATTORNEY GENERAL WHEN TEXAS STATE AGENCIES ARE NAMED DEFENDANTS IN ANY LAWSUIT AND MAY NOT AGREE TO ANY SETTLEMENT WITHOUT FIRST OBTAINING THE CONCURRENCE FROM THE OFFICE OF THE TEXAS ATTORNEY GENERAL. AND THE GLO SHALL FURNISH TIMELY WRITTEN NOTICE TO EACH OTHER OF ANY SUCH CLAIM.
 23. TO THE EXTENT ALLOWED BY LAW, SHALL DEFEND, INDEMNIFY, AND HOLD HARMLESS THE GLO AND THE STATE OF TEXAS FROM AND AGAINST ANY AND ALL CLAIMS, VIOLATIONS, MISAPPROPRIATIONS OR INFRINGEMENT OF ANY PATENT, TRADEMARK, COPYRIGHT, TRADE SECRET OR OTHER INTELLECTUAL PROPERTY

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RIGHTS AND/OR OTHER INTANGIBLE PROPERTY, PUBLICITY OR PRIVACY RIGHTS, AND/OR IN CONNECTION WITH OR ARISING FROM: (1) THE PERFORMANCE OR ACTIONS OF PURSUANT TO THIS CONTRACT; (2) ANY DELIVERABLE, WORK PRODUCT, CONFIGURED SERVICE OR OTHER SERVICE PROVIDED HEREUNDER; AND/OR (3) THE GLO'S AND/OR 'S USE OF OR ACQUISITION OF ANY REQUESTED SERVICES OR OTHER ITEMS PROVIDED TO THE GLO BY OR OTHERWISE TO WHICH THE GLO HAS ACCESS AS A RESULT OF 'S PERFORMANCE UNDER THE CONTRACT. AND THE GLO SHALL FURNISH TIMELY WRITTEN NOTICE TO EACH OTHER OF ANY SUCH CLAIM. SHALL BE LIABLE TO PAY ALL COSTS OF DEFENSE, INCLUDING ATTORNEYS' FEES. THE DEFENSE SHALL BE COORDINATED BY WITH THE OFFICE OF THE TEXAS ATTORNEY GENERAL (OAG) WHEN TEXAS STATE AGENCIES ARE NAMED DEFENDANTS IN ANY LAWSUIT AND MAY NOT AGREE TO ANY SETTLEMENT WITHOUT FIRST OBTAINING THE CONCURRENCE FROM OAG. IN ADDITION, WILL REIMBURSE THE GLO AND THE STATE OF TEXAS FOR ANY CLAIMS, DAMAGES, COSTS, EXPENSES OR OTHER AMOUNTS, INCLUDING, BUT NOT LIMITED TO, ATTORNEYS' FEES AND COURT COSTS, ARISING FROM ANY SUCH CLAIM. IF THE GLO DETERMINES THAT A CONFLICT EXISTS BETWEEN ITS INTERESTS AND THOSE OF OR IF THE GLO IS REQUIRED BY APPLICABLE LAW TO SELECT SEPARATE COUNSEL, THE GLO WILL BE PERMITTED TO SELECT SEPARATE COUNSEL AND WILL PAY ALL REASONABLE COSTS OF THE GLO'S COUNSEL.

24. has disclosed in writing to the GLO all existing or potential conflicts of interest relative to the performance of the Contract.
25. Sections 2155.006 and 2261.053 of the Texas Government Code prohibit state agencies from accepting a solicitation response or awarding a contract that includes proposed financial participation by a person who, in the past five years, has been convicted of violating a federal law or assessed a penalty in connection with a contract involving relief for Hurricane Rita, Hurricane Katrina, or any other disaster, as defined by Section 418.004 of the Texas Government Code, occurring after September 24, 2005. Under Sections 2155.006 and 2261.053 of the Texas Government Code, certifies that the individual or business entity named in this Contract is not ineligible to receive the specified contract and acknowledges that this Contract may be terminated and payment withheld if this certification is inaccurate.
26. understands that the GLO will comply with the Texas Public Information Act (Chapter 552 of the Texas Government Code) as interpreted by judicial rulings and opinions of the Attorney General of the State of Texas. Information, documentation, and other material related to this Contract may be subject to public disclosure pursuant to the Texas Public Information Act. In accordance with Section 2252.907 of the Texas Government Code, shall make any information created or exchanged with the State/GLO pursuant to the Contract, and not otherwise excepted from disclosure under the Texas Public Information Act, available in a format that is accessible by the public at no additional charge to the State or the GLO.
27. The person executing this Contract certifies that he/she is duly authorized to execute this Contract on his/her own behalf or on behalf of and legally empowered to contractually bind to the terms and conditions of the Contract and related documents.
28. If the Contract is for architectural or engineering services, pursuant to Section 2254.0031 of the Texas Government Code, which incorporates by reference Section 271.904(d) of the Texas Local Government Code, shall perform services (1) with professional skill and care ordinarily provided by competent engineers or architects practicing under the same or similar circumstances and professional license, and

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- (2) as expeditiously as is prudent considering the ordinary professional skill and care of a competent engineer or architect.
29. The state auditor may conduct an audit or investigation of any entity receiving funds from the state directly under the Contract or indirectly through a subcontract under the Contract. The acceptance of funds directly under the Contract or indirectly through a subcontract under the Contract acts as acceptance of the authority of the state auditor, under the direction of the legislative audit committee, to conduct an audit or investigation in connection with those funds. Under the direction of the legislative audit committee, an entity that is the subject of an audit or investigation by the state auditor must provide the state auditor with access to any information the state auditor considers relevant to the investigation or audit. shall ensure that this paragraph concerning the authority to audit funds received indirectly by subcontractors through the Contract and the requirement to cooperate is included in any subcontract it awards. The GLO may unilaterally amend the Contract to comply with any rules and procedures of the state auditor in the implementation and enforcement of Section 2262.154 of the Texas Government Code.
 30. certifies that neither it nor its principals are debarred, suspended, proposed for debarment, declared ineligible, or otherwise excluded from participation in the Contract by any state or federal agency.
 31. expressly acknowledges that state funds may not be expended in connection with the purchase of an automated information system unless that system meets certain statutory requirements relating to accessibility by persons with visual impairments. Accordingly, represents and warrants to the GLO that any technology provided to the GLO for purchase pursuant to this Contract is capable, either by virtue of features included within the technology or because it is readily adaptable by use with other technology, of: providing equivalent access for effective use by both visual and non-visual means; presenting information, including prompts used for interactive communications, in formats intended for non-visual use; and being integrated into networks for obtaining, retrieving, and disseminating information used by individuals who are not blind or visually impaired. For purposes of this Section, the phrase "equivalent access" means a substantially similar ability to communicate with or make use of the technology, either directly by features incorporated within the technology or by other reasonable means such as assistive devices or services which would constitute reasonable accommodations under the Americans With Disabilities Act or similar state or federal laws. Examples of methods by which equivalent access may be provided include, but are not limited to, keyboard alternatives to mouse commands and other means of navigating graphical displays, and customizable display appearance.
 32. If the Contract is for the purchase or lease of covered television equipment, as defined by Section 361.971(3) of the Texas Health and Safety Code, certifies its compliance with Subchapter Z, Chapter 361 of the Texas Health and Safety Code, related to the Television Equipment Recycling Program.
 33. Pursuant to Section 572.069 of the Texas Government Code, certifies it has not employed and will not employ a former state officer or employee who participated in a procurement or contract negotiations for the GLO involving within two (2) years after the date that the contract is signed or the procurement is terminated or withdrawn. This certification only applies to former state officers or employees whose state service or employment ceased on or after September 1, 2015.
 34. The GLO does not tolerate any type of fraud. GLO policy promotes consistent, legal, and ethical organizational behavior by assigning responsibilities and providing guidelines to enforce controls. Any violations of law, agency policies, or standards of ethical conduct will be investigated, and appropriate

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- actions will be taken. shall report any possible fraud, waste, or abuse that occurs in connection with the Contract to the GLO's Fraud Reporting hotline at (877) 888-0002.
35. The requirements of Subchapter J, Chapter 552, Government Code, may apply to this contract and agrees that the Contract can be terminated if knowingly or intentionally fails to comply with a requirement of that subchapter.
 36. If, in its performance of the Contract, has access to a state computer system or database, must complete a cybersecurity training program certified under Texas Government Code Section 2054.519, as selected by the GLO. must complete the cybersecurity training program during the initial term of the Contract and during any renewal period. must verify in writing to the GLO its completion of the cybersecurity training program.
 37. Under Section 2155.0061, Texas Government Code, certifies that the entity named in this contract is not ineligible to receive the specified contract and acknowledges that this contract may be terminated and payment withheld if this certification is inaccurate.

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65. SECTION 231.006, FAMILY CODE/DELINQUENT CHILD SUPPORT

Pursuant to Title 5, Section 231.006 of the Texas Family Code, as applicable, Proposer certifies that it, including all of its principals, is/are current in child support payments and that it is eligible to receive payments from State funds under a contract for property, materials, or services. Proposer acknowledges and agrees that if it is awarded this contract, then the ensuing agreement may be terminated, and payment withheld if this certification is inaccurate. Finally, by the submission of its Proposal, the Proposer certifies that it has included the names and social security numbers of each person with at least 25% ownership interest in Proposer within its response to the request for Proposal and that all such persons are current in child support payments.

66. ANTITRUST

Pursuant to 15 U.S.C. § 1, et seq., and Texas Business and Commerce Code, Chapter 15, Contractor, by the submission of its Proposal, certifies that neither Contractor nor any natural person, proprietorship, firm, corporation, partnership, association, or institution represented by Contractor or anyone acting for such natural person, proprietorship, firm, corporation, partnership, association, or institution has violated any Federal or State antitrust laws or communicated the nature of the offer, directly or indirectly, to any competitor or other person engaged in a similar line of business.

67. LABOR STANDARDS

On contracts funded under a federal grant: Proposer acknowledges that the contract to be awarded pursuant to this solicitation is on a grant program funded with Federal funds. Proposer shall comply with the requirements of 29 CFR Part 5 and Part 30 and shall be in conformity with Executive Order 11246, entitled "Equal Employment Opportunity", Copeland, "Anti-Kickback" Act (40 U.S.C. 3145, 29 C.F.R. Part 3), the Davis-Bacon and Related Acts (40 U.S.C. 3141-3148, 29 C.F.R. Parts 1,3, and 5), the Contract Work Hours and Safety Standards Act (40 U.S.C. 3701 et seq.), and all other applicable Federal, State, and local laws and regulations pertaining to labor standards, insofar as those acts apply to the performance of this Agreement. Proposer is also responsible for ensuring that all subcontractors comply with the requirements of 29 CFR Part 5 and Part 30 and shall be in conformity with Executive Order 11246, entitled "Equal Employment Opportunity", Copeland "Anti-Kickback" Act, the Davis-Bacon and Related Acts (29 CFR Parts 1, 3 and 5), the Contract Work Hours and Safety Standards Act (40 U.S.C. 3701 et seq.), and all other applicable Federal, State, and local laws and regulations pertaining to labor standards, insofar as those acts apply to the performance of this Agreement.

Contractor is encouraged to use local labor, but not at the expense of poor workmanship and higher cost. Contractor will not discriminate against any employee or applicant for employment because of race, religion, color, sex, or national origin. Contractor agrees to post in a conspicuous place a notice setting forth provisions of this non-discrimination clause.

68. PROCUREMENT STANDARDS - 2 C.F.R. §§ 200.317 – 200.326 & 2 C.F.R. PART 200, APPENDIX II

The Office of Management and Budget (OMB) revised the Uniform Guidance for grants (2 C.F.R. part 200) on August 13, 2020. This was the first major updating of the Uniform Guidance since 2014.

Effective Date:

- The full suite of changes became effective November 12, 2020. They will apply to all new Grants to States awards issued after that date, including the FY2021 awards.

Procurement:

New provisions for procurements by States (2 C.F.R. § 200.317):

When procuring property and services under an award, a State will continue to follow the same policies and procedures it uses for procurement from its non-Federal funds. A State must now also comply with §§ 200.321

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(contracting with small and minority businesses, women's business enterprises, and labor surplus area firms) and 200.322 (domestic preferences for procurements); and continue to comply with § 200.323 (procurement of recovered materials).

New provisions for all other non-Federal entities, including subrecipients of a State:

The OMB explains in the Aug. 13, 2020, Federal Register notice for the Uniform Guidance revisions, the following changes were made to 2 C.F.R. § 200.320 (methods of procurement):

- The procurement types are now grouped into three categories:
 - (1) Informal (micro-purchase, small purchase);
 - (2) Formal (sealed Proposals, proposals); and
 - (3) Non-Competitive (sole source).

The micro-purchase threshold is raised from \$3,500 to \$10,000. Micro-purchase thresholds higher than \$10,000 are based on certain conditions that include a requirement to maintain records for threshold up to \$50,000 and a formal approval process by the Fed. Govt. for threshold above \$50,000.

More specifically, for Grants to States:

- (1) the subrecipient may self-certify an increase of the micro-purchase threshold up to \$50,000 (based on certain requirements).
- (2) micro-purchase thresholds higher than \$50,000 must be approved by the cognizant agency for indirect costs. (for details, see 2 C.F.R. § 200.320 (a) (1) (iii) and (iv)).

The simplified acquisition threshold is raised from \$150,000 to \$250,000.

Two contract clauses were added to [Appendix II of 2 C.F.R. Part 200](#). In addition to the previous contract clauses contained in the 2014 version of Appendix II of 2 C.F.R. Part 200, FEMA award recipient and subrecipient contracts and purchase orders must now include contract provisions for *Domestic Preferences for Procurements* (2 C.F.R. 200.322) and the *Prohibition on Contracting for Covered Telecommunications or Services* (2 C.F.R. 200.316)

2 C.F.R. § 200.317. Procurements by states.

When procuring property and services under a Federal award, a state must follow the same policies and procedures it uses for procurements from its non-Federal funds. The state will comply with §200.322 Procurement of recovered materials and ensure that every purchase order or other contract includes any clauses required by section §200.326 Contract provisions. All other non-Federal entities, including subrecipients of a state, will follow §§ 200.318 General procurement standards through 200.326 Contract provisions.

69 FR 26280, May 11, 2004; 78 FR 78608, Dec. 26, 2013

2 C.F.R. § 200.318. General procurement standards.

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- (a) The non-Federal entity must use its own documented procurement procedures which reflect applicable State, local and tribal laws and regulations, provided that the procurements conform to applicable Federal law and the standards identified in this part.
- (b) Non-Federal entities must maintain oversight to ensure that contractors perform in accordance with the terms, conditions, and specifications of their contracts or purchase orders.
- (c)
- (1) The non-Federal entity must maintain written standards of conduct covering conflicts of interest and governing the actions of its employees engaged in the selection, award and administration of contracts. No employee, officer, or agent may participate in the selection, award, or administration of a contract supported by a Federal award if he or she has a real or apparent conflict of interest. Such a conflict of interest would arise when the employee, officer, or agent, any member of his or her immediate family, his or her partner, or an organization which employs or is about to employ any of the parties indicated herein, has a financial or other interest in or a tangible personal benefit from a firm considered for a contract. The officers, employees, and agents of the non-Federal entity may neither solicit nor accept gratuities, favors, or anything of monetary value from contractors or parties to subcontracts. However, non-Federal entities may set standards for situations in which the financial interest is not substantial or the gift is an unsolicited item of nominal value. The standards of conduct must provide for disciplinary actions to be applied for violations of such standards by officers, employees, or agents of the non-Federal entity.
- (2) If the non-Federal entity has a parent, affiliate, or subsidiary organization that is not a state, local government, or Indian tribe, the non-Federal entity must also maintain written standards of conduct covering organizational conflicts of interest. Organizational conflicts of interest means that because of relationships with a parent company, affiliate, or subsidiary organization, the non-Federal entity is unable or appears to be unable to be impartial in conducting a procurement action involving a related organization.
- (d) The non-Federal entity's procedures must avoid acquisition of unnecessary or duplicative items. Consideration should be given to consolidating or breaking out procurements to obtain a more economical purchase. Where appropriate, an analysis will be made of lease versus purchase alternatives, and any other appropriate analysis to determine the most economical approach.
- (e) To foster greater economy and efficiency, and in accordance with efforts to promote cost-effective use of shared services across the Federal Government, the non-Federal entity is encouraged to enter into state and local intergovernmental agreements or inter-entity agreements where appropriate for procurement or use of common or shared goods and services.
- (f) The non-Federal entity is encouraged to use Federal excess and surplus property in lieu of purchasing new equipment and property whenever such use is feasible and reduces project costs.
- (g) The non-Federal entity is encouraged to use value engineering clauses in contracts for construction projects of sufficient size to offer reasonable opportunities for cost reductions. Value engineering is a systematic and creative analysis of each contract item or task to ensure that its essential function is provided at the overall lower cost.
- (h) The non-Federal entity must award contracts only to responsible contractors possessing the ability to perform successfully under the terms and conditions of a proposed procurement. Consideration will be given to such matters as contractor integrity, compliance with public policy, record of past performance, and financial and technical resources. See also § 200.213 Suspension and debarment.

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(i) The non-Federal entity must maintain records sufficient to detail the history of procurement. These records will include, but are not necessarily limited to the following: rationale for the method of procurement, selection of contract type, contractor selection or rejection, and the basis for the contract price.

(j)

(1) The non-Federal entity may use a time and materials type contract only after a determination that no other contract is suitable and if the contract includes a ceiling price that the contractor exceeds at its own risk. Time and materials type contract means a contract whose cost to a non-Federal entity is the sum of:

(i) The actual cost of materials; and

(ii) Direct labor hours charged at fixed hourly rates that reflect wages, general and administrative expenses, and profit.

(2) Since this formula generates an open-ended contract price, a time-and-materials contract provides no positive profit incentive to the contractor for cost control or labor efficiency. Therefore, each contract must set a ceiling price that the contractor exceeds at its own risk. Further, the non-Federal entity awarding such a contract must assert a high degree of oversight in order to obtain reasonable assurance that the contractor is using efficient methods and effective cost controls.

(k) The non-Federal entity alone must be responsible, in accordance with good administrative practice and sound business judgment, for the settlement of all contractual and administrative issues arising out of procurements. These issues include, but are not limited to, source evaluation, protests, disputes, and claims. These standards do not relieve the non-Federal entity of any contractual responsibilities under its contracts. The Federal awarding agency will not substitute its judgment for that of the non-Federal entity unless the matter is primarily a Federal concern. Violations of law will be referred to the local, state, or Federal authority having proper jurisdiction.

78 FR 78608, Dec. 26, 2013, as amended at 79 FR 75885, Dec. 19, 2014; 80 FR 43309, July 22, 2015; 80 FR 45395, July 30, 2015

2 C.F.R. § 200.319. Competition.

(a) All procurement transactions must be conducted in a manner providing full and open competition consistent with the standards of this section. In order to ensure objective contractor performance and eliminate unfair competitive advantage, contractors that develop or draft specifications, requirements, statements of work, or invitations for Proposals or requests for proposals must be excluded from competing for such procurements. Some of the situations considered to be restrictive of competition include but are not limited to:

(1) Placing unreasonable requirements on firms in order for them to qualify to do business;

(2) Requiring unnecessary experience and excessive bonding;

(3) Noncompetitive pricing practices between firms or between affiliated companies;

(4) Noncompetitive contracts to consultants that are on retainer contracts;

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(5) Organizational conflicts of interest;

(6) Specifying only a “brand name” product instead of allowing “an equal” product to be offered and describing the performance or other relevant requirements of the procurement; and

(7) Any arbitrary action in the procurement process.

(b) The non-Federal entity must conduct procurements in a manner that prohibits the use of statutorily or administratively imposed state, local, or tribal geographical preferences in the evaluation of Proposals or proposals, except in those cases where applicable Federal statutes expressly mandate or encourage geographic preference. Nothing in this section preempts state licensing laws. When contracting for architectural and engineering (A/E) services, geographic location may be a selection criterion provided its application leaves an appropriate number of qualified firms, given the nature and size of the project, to compete for the contract.

(c) The non-Federal entity must have written procedures for procurement transactions. These procedures must ensure that all solicitations:

(1) Incorporate a clear and accurate description of the technical requirements for the material, product, or service to be procured. Such description must not, in competitive procurements, contain features which unduly restrict competition. The description may include a statement of the qualitative nature of the material, product or service to be procured and, when necessary, must set forth those minimum essential characteristics and standards to which it must conform if it is to satisfy its intended use. Detailed product specifications should be avoided if at all possible. When it is impractical or uneconomical to make a clear and accurate description of the technical requirements, a “brand name or equivalent” description may be used as a means to define the performance or other salient requirements of procurement. The specific features of the named brand which must be met by offers must be clearly stated; and

(2) Identify all requirements which the offerors must fulfill and all other factors to be used in evaluating Proposals or proposals.

(d) The non-Federal entity must ensure that all prequalified lists of persons, firms, or products which are used in acquiring goods and services are current and include enough qualified sources to ensure maximum open and free competition. Also, the non-Federal entity must not preclude potential Proposers from qualifying during the solicitation period.

78 FR 78608, Dec. 26, 2013, as amended at 79 FR 75885, Dec. 19, 2014

2 C.F.R. § 200.320. Methods of procurement to be followed.

The non-Federal entity must use one of the following methods of procurement.

(a) Procurement by micro-purchases. Procurement by micro-purchase is the acquisition of supplies or services, the aggregate dollar amount of which does not exceed the micro-purchase threshold (§200.67 Micro-purchase). To the extent practicable, the non-Federal entity must distribute micro-purchases equitably among qualified suppliers. Micro-purchases may be awarded without soliciting competitive quotations if the non-Federal entity considers the price to be reasonable.

(b) Procurement by small purchase procedures. Small purchase procedures are those relatively simple and informal procurement methods for securing services, supplies, or other property that do not cost more than the Simplified Acquisition Threshold. If small purchase procedures are used, price or rate quotations must be obtained from an adequate number of qualified sources.

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(c) Procurement by sealed Proposals (formal advertising). Proposals are publicly solicited and a firm fixed price contract (lump sum or unit price) is awarded to the responsible Proposer whose bid, conforming with all the material terms and conditions of the Request for Proposals, is the lowest in price. The sealed bid method is the preferred method for procuring construction, if the conditions in paragraph (c)(1) of this section apply.

(1) In order for sealed bidding to be feasible, the following conditions should be present:

- (i) A complete, adequate, and realistic specification or purchase description is available;
- (ii) Two or more responsible Proposers are willing and able to compete effectively for the business;
and
- (iii) The procurement lends itself to a firm fixed price contract and the selection of the successful Proposer can be made principally on the basis of price.

(2) If sealed bids are used, the following requirements apply:

(i) Bids must be solicited from an adequate number of known suppliers, providing them sufficient response time prior to the date set for opening the bids, for local, and tribal governments, the invitation for bids must be publicly advertised;

(ii) The invitation for bids, which will include any specifications and pertinent attachments, must define the items or services in order for the Proposer to properly respond;

(iii) All bids will be opened at the time and place prescribed in the invitation for bids, and for local and tribal governments, the bids must be opened publicly;

(iv) A firm fixed price contract award will be made in writing to the lowest responsive and responsible Proposer. Where specified in bidding documents, factors such as discounts, transportation cost, and life cycle costs must be considered in determining which bid is lowest. Payment discounts will only be used to determine the low bid when prior experience indicates that such discounts are usually taken advantage of; and

(v) Any or all bids may be rejected if there is a sound documented reason.

(d) Procurement by competitive proposals. The technique of competitive proposals is normally conducted with more than one source submitting an offer, and either a fixed price or cost-reimbursement type contract is awarded. It is generally used when conditions are not appropriate for the use of sealed bids. If this method is used, the following requirements apply:

(1) Requests for proposals must be publicized and identify all evaluation factors and their relative importance. Any response to publicized requests for proposals must be considered to the maximum extent practical;

(2) Proposals must be solicited from an adequate number of qualified sources;

(3) The non-Federal entity must have a written method for conducting technical evaluations of the proposals received and for selecting recipients;

(4) Contracts must be awarded to the responsible firm whose proposal is most advantageous to the program, with price and other factors considered; and

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(5) The non-Federal entity may use competitive proposal procedures for qualifications-based procurement of architectural/engineering (A/E) professional services whereby competitors' qualifications are evaluated and the most qualified competitor is selected, subject to negotiation of fair and reasonable compensation. The method, where price is not used as a selection factor, can only be used in procurement of A/E professional services. It cannot be used to purchase other types of services though A/E firms are a potential source to perform the proposed effort.

(e) [Reserved]

(f) Procurement by noncompetitive proposals. Procurement by noncompetitive proposals is procurement through solicitation of a proposal from only one source and may be used only when one or more of the following circumstances apply:

(1) The item is available only from a single source;

(2) The public exigency or emergency for the requirement will not permit a delay resulting from competitive solicitation;

(3) The Federal awarding agency or pass-through entity expressly authorizes noncompetitive proposals in response to a written request from the non-Federal entity; or

(4) After solicitation of a number of sources, competition is determined inadequate.

78 FR 78608, Dec. 26, 2013, as amended at 79 FR 75885, Dec. 19, 2014; 80 FR 54409, Sept. 10, 2015

2 C.F.R. § 200.321. Contracting with small and minority businesses, women's business enterprises, and labor surplus area firms.

(a) The non-Federal entity must take all necessary affirmative steps to assure that minority businesses, women's business enterprises, and labor surplus area firms are used when possible.

(b) Affirmative steps must include:

(1) Placing qualified small and minority businesses and women's business enterprises on solicitation lists;

(2) Assuring that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources;

(3) Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses, and women's business enterprises;

(4) Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority businesses, and women's business enterprises;

(5) Using the services and assistance, as appropriate, of such organizations as the Small Business Administration and the Minority Business Development Agency of the Department of Commerce; and

(6) Requiring the prime contractor, if subcontracts are to be let, to take the affirmative steps listed in paragraphs (1) through (5) of this section.

69 FR 26280, May 11, 2004; 78 FR 78608, Dec. 26, 2013, unless otherwise noted

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2 C.F.R. § 200.322. Procurement of recovered materials.

A non-Federal entity that is a state agency or agency of a political subdivision of a state and its contractors must comply with section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act. The requirements of Section 6002 include procuring only items designated in guidelines of the Environmental Protection Agency (EPA) at 40 CFR part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition, where the purchase price of the item exceeds \$10,000 or the value of the quantity acquired during the preceding fiscal year exceeded \$10,000; procuring solid waste management services in a manner that maximizes energy and resource recovery; and establishing an affirmative procurement program for procurement of recovered materials identified in the EPA guidelines.

78 FR 78608, Dec. 26, 2013, as amended at 79 FR 75885, Dec. 19, 2014

2 C.F.R. § 200.323. Contract cost and price.

(a) The non-Federal entity must perform a cost or price analysis in connection with every procurement action in excess of the Simplified Acquisition Threshold including contract modifications. The method and degree of analysis is dependent on the facts surrounding the particular procurement situation, but as a starting point, the non-Federal entity must make independent estimates before receiving bids or proposals.

(b) The non-Federal entity must negotiate profit as a separate element of the price for each contract in which there is no price competition and in all cases where cost analysis is performed. To establish a fair and reasonable profit, consideration must be given to the complexity of the work to be performed, the risk borne by the contractor, the contractor's investment, the amount of subcontracting, the quality of its record of past performance, and industry profit rates in the surrounding geographical area for similar work.

(c) Costs or prices based on estimated costs for contracts under the Federal award are allowable only to the extent that costs incurred or cost estimates included in negotiated prices would be allowable for the non-Federal entity under Subpart E—Cost Principles of this part. The non-Federal entity may reference its own cost principles that comply with the Federal cost principles.

(d) The cost plus a percentage of cost and percentage of construction cost methods of contracting must not be used.

69 FR 26280, May 11, 2004; 78 FR 78608, Dec. 26, 2013, unless otherwise noted

2 C.F.R. § 200.324. Federal awarding agency or pass-through entity review.

(a) The non-Federal entity must make available, upon request of the Federal awarding agency or pass-through entity, technical specifications on proposed procurements where the Federal awarding agency or pass-through entity believes such review is needed to ensure that the item or service specified is the one being proposed for acquisition. This review generally will take place prior to the time the specification is incorporated into a solicitation document. However, if the non-Federal entity desires to have the review accomplished after a solicitation has been developed, the Federal awarding agency or pass-through entity may still review the specifications, with such review usually limited to the technical aspects of the proposed purchase.

(b) The non-Federal entity must make available upon request, for the Federal awarding agency or pass-through entity pre-procurement review, procurement documents, such as requests for proposals or invitations for bids, or independent cost estimates, when:

(1) The non-Federal entity's procurement procedures or operation fails to comply with the procurement standards in this part;

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- (2) The procurement is expected to exceed the Simplified Acquisition Threshold and is to be awarded without competition or only one bid or offer is received in response to a solicitation;
- (3) The procurement, which is expected to exceed the Simplified Acquisition Threshold, specifies a “brand name” product;
- (4) The proposed contract is more than the Simplified Acquisition Threshold and is to be awarded to other than the apparent low Proposer under a sealed bid procurement; or
- (5) A proposed contract modification changes the scope of a contract or increases the contract amount by more than the Simplified Acquisition Threshold.
- (c) The non-Federal entity is exempt from the pre-procurement review in paragraph (b) of this section if the Federal awarding agency or pass-through entity determines that its procurement systems comply with the standards of this part.
- (1) The non-Federal entity may request that its procurement system be reviewed by the Federal awarding agency or pass-through entity to determine whether its system meets these standards in order for its system to be certified. Generally, these reviews must occur where there is continuous high-dollar funding, and third party contracts are awarded on a regular basis;
- (2) The non-Federal entity may self-certify its procurement system. Such self-certification must not limit the Federal awarding agency's right to survey the system. Under a self-certification procedure, the Federal awarding agency may rely on written assurances from the non-Federal entity that it is complying with these standards. The non-Federal entity must cite specific policies, procedures, regulations, or standards as being in compliance with these requirements and have its system available for review.

69 FR 26280, May 11, 2004; 78 FR 78608, Dec. 26, 2013, unless otherwise noted

2 C.F.R. § 200.325. Bonding requirements.

For construction or facility improvement contracts or subcontracts exceeding the Simplified Acquisition Threshold, the Federal awarding agency or pass-through entity may accept the bonding policy and requirements of the non-Federal entity provided that the Federal awarding agency or pass-through entity has made a determination that the Federal interest is adequately protected. If such a determination has not been made, the minimum requirements must be as follows:

- (a) A bid guarantee from each Proposer equivalent to five percent of the bid price. The “bid guarantee” must consist of a firm commitment such as a bid bond, certified check, or other negotiable instrument accompanying a bid as assurance that the Proposer will, upon acceptance of the bid, execute such contractual documents as may be required within the time specified.
- (b) A performance bond on the part of the contractor for 100 percent of the contract price. A “performance bond” is one executed in connection with a contract to secure fulfillment of all the contractor's obligations under such contract.
- (c) A payment bond on the part of the contractor for 100 percent of the contract price. A “payment bond” is one executed in connection with a contract to assure payment as required by law of all persons supplying labor and material in the execution of the work provided for in the contract.

69 FR 26280, May 11, 2004; 78FR 78608, Dec. 26, 2013, unless otherwise noted

2 C.F.R. § 200.326. Contract provisions.

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The non-Federal entity's contracts must contain the applicable provisions described in Appendix II to Part 200—Contract Provisions for non-Federal Entity Contracts Under Federal Awards.

69 FR 26280, May 11, 2004; 78 FR 78608, Dec. 26, 2013, unless otherwise note

2 C.F.R. Part, 200, Appendix II

In addition to other provisions required by the Federal agency or non-Federal entity, all contracts made by the non-Federal entity under the Federal award must contain provisions covering the following, as applicable.

(A) Contracts for more than the simplified acquisition threshold currently set at \$150,000, which is the inflation adjusted amount determined by the Civilian Agency Acquisition Council and the Defense Acquisition Regulations Council (Councils) as authorized by 41 U.S.C. 1908, must address administrative, contractual, or legal remedies in instances where contractors violate or breach contract terms, and provide for such sanctions and penalties as appropriate.

(B) All contracts in excess of \$10,000 must address termination for cause and for convenience by the non-Federal entity including the manner by which it will be affected and the basis for settlement.

(C) Equal Employment Opportunity. Except as otherwise provided under 41 CFR Part 60, all contracts that meet the definition of “federally assisted construction contract” in 41 CFR Part 60-1.3 must include the equal opportunity clause provided under 41 CFR 60-1.4(b), in accordance with Executive Order 11246, “Equal Employment Opportunity” (30 FR 12319, 12935, 3 CFR Part, 1964-1965 Comp., p. 339), as amended by Executive Order 11375, “Amending Executive Order 11246 Relating to Equal Employment Opportunity,” and implementing regulations at 41 CFR part 60, “Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor.”

(D) Davis-Bacon Act, as amended (40 U.S.C. 3141-3148). When required by Federal program legislation, all prime construction contracts in excess of \$2,000 awarded by non-Federal entities must include a provision for compliance with the Davis-Bacon Act (40 U.S.C. 3141-3144, and 3146-3148) as supplemented by Department of Labor regulations (29 CFR Part 5, “Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction”). In accordance with the statute, contractors must be required to pay wages to laborers and mechanics at a rate not less than the prevailing wages specified in a wage determination made by the Secretary of Labor. In addition, contractors must be required to pay wages not less than once a week. The non-Federal entity must place a copy of the current prevailing wage determination issued by the Department of Labor in each solicitation. The decision to award a contract or subcontract must be conditioned upon the acceptance of the wage determination. The non-Federal entity must report all suspected or reported violations to the Federal awarding agency. The contracts must also include a provision for compliance with the Copeland “Anti-Kickback” Act (40 U.S.C. 3145), as supplemented by Department of Labor regulations (29 CFR Part 3, “Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States”). The Act provides that each contractor or subrecipient must be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public work, to give up any part of the compensation to which he or she is otherwise entitled. The non-Federal entity must report all suspected or reported violations to the Federal awarding agency.

(E) Contract Work Hours and Safety Standards Act (40 U.S.C. 3701-3708). Where applicable, all contracts awarded by the non-Federal entity in excess of \$100,000 that involve the employment of mechanics or laborers must include a provision for compliance with 40 U.S.C. 3702 and 3704, as supplemented by Department of Labor regulations (29 CFR Part 5). Under 40 U.S.C. 3702 of the Act, each contractor must be required to compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week. The requirements of 40 U.S.C. 3704 are applicable to construction work and provide that no laborer or mechanic must be required to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous. These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.

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(F) Rights to Inventions Made Under a Contract or Agreement. If the Federal award meets the definition of “funding agreement” under 37 CFR §401.2 (a) and the recipient or subrecipient wishes to enter into a contract with a small business firm or nonprofit organization regarding the substitution of parties, assignment or performance of experimental, developmental, or research work under that “funding agreement,” the recipient or subrecipient must comply with the requirements of 37 CFR Part 401, “Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements,” and any implementing regulations issued by the awarding agency.

(G) Clean Air Act (42 U.S.C. 7401-7671q.) and the Federal Water Pollution Control Act (33 U.S.C. 1251-1387), as amended—Contracts and subgrants of amounts in excess of \$150,000 must contain a provision that requires the non-Federal award to agree to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act as amended (33 U.S.C. 1251-1387). Violations must be reported to the Federal awarding agency and the Regional Office of the Environmental Protection Agency (EPA).

(H) Debarment and Suspension (Executive Orders 12549 and 12689)—A contract award (see 2 CFR 180.220) must not be made to parties listed on the governmentwide exclusions in the System for Award Management (SAM), in accordance with the OMB guidelines at 2 CFR 180 that implement Executive Orders 12549 (3 CFR part 1986 Comp., p. 189) and 12689 (3 CFR part 1989 Comp., p. 235), “Debarment and Suspension.” SAM Exclusions contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549.

(I) Byrd Anti-Lobbying Amendment (31 U.S.C. 1352)—Contractors that apply or bid for an award exceeding \$100,000 must file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. 1352. Each tier must also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the non-Federal award.

(J) See §200.322 Procurement of recovered materials.

78 FR 78608, Dec. 26, 2013, as amended at 79 FR 75888, Dec. 19, 2014

DOMESTIC PREFERENCES FOR PROCUREMENTS *(All State and non-State entity purchase orders must adhere to the following)*

§ 200.322 Domestic preferences for procurements.

(a) As appropriate and to the extent consistent with law, the non-Federal entity should, to the greatest extent practicable under a Federal award, provide a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States (including but not limited to iron, aluminum, steel, cement, and other manufactured products). The requirements of this section must be included in all subawards including all contracts and purchase orders for work or products under this award.

(b) For purposes of this section:

(1) “Produced in the United States” means, for iron and steel products, that all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States.

(2) “Manufactured products” means items and construction materials composed in whole or in part of non-ferrous metals such as aluminum; plastics and polymer-based products such as polyvinyl chloride pipe; aggregates such as concrete; glass, including optical fiber; and lumber.

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PROHIBITION ON CONTRACTING FOR COVERED TELECOMMUNICATIONS OR SERVICES
(Effective August 13, 2020 for new, extended, or renewed procurements under all open FEMA awards)

§ 200.216 Prohibition on certain telecommunications and video surveillance services or equipment.

(a) Recipients and subrecipients are prohibited from obligating or expending loan or grant funds to:

(1) Procure or obtain;

(2) Extend or renew a contract to procure or obtain; or

(3) Enter into a contract (or extend or renew a contract) to procure or obtain equipment, services, or systems that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. As described in Public Law 115-232, section 889, covered telecommunications equipment is telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities).

(i) For the purpose of public safety, security of government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities).

(ii) Telecommunications or video surveillance services provided by such entities or using such equipment.

(iii) Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of the National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.

(b) In implementing the prohibition under Public Law 115-232, section 889, subsection (f), paragraph (1), heads of executive agencies administering loan, grant, or subsidy programs shall prioritize available funding and technical support to assist affected businesses, institutions and organizations as is reasonably necessary for those affected entities to transition from covered communications equipment and services, to procure replacement equipment and services, and to ensure that communications service to users and customers is sustained.

(c) See Public Law 115-232, section 889 for additional information.

(c) See also § 200.471.

69. PROCUREMENT LAWS

a. Proposer shall comply with all applicable local, State, and Federal laws, rules, and regulations.

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- b. If this contract is made pursuant to a federal award, then Contractor acknowledges that the contract is subject, without limitation, to applicable provisions within 2 C.F.R. Part 200, Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards. Contractor shall comply with applicable provisions within 2 C.F.R., Sections 200.319 through 200.326, including but not limited to the following:
- 1.) **Equal Employment Opportunity**, 41 C.F.R. Part 60-1.4(b) (applicable to federally assisted construction contracts).
- (a) During the performance of this contract, the contractor agrees as follows:
- (1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, national original, disability, or veteran status. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, national original, disability or veteran status. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.
 - (2) The contractor will, in all solicitations or advertisements for employees placed by or on behalf of contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, national original, disability, or veteran status.
 - (3) The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
 - (4) The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and by rules, regulations, and relevant orders of the Secretary of Labor.
 - (5) The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to contractor's books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
 - (6) In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be cancelled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions as may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
 - (7) The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance: Provided, however, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

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- 2.) **Small and minority business, women’s business enterprises, and labor surplus area firms (2 C.F.R. § 200.321).** The County is required to take affirmative steps to assure that minority businesses, women’s business enterprises, and labor surplus area firms are used when possible. This includes requiring the prime contractor, if subcontracts are to be let in the performance of this contract, to itself take affirmative steps in letting the subcontract. Accordingly, if subcontracts are to be let in the performance of this contract, the contractor must take affirmative steps in the letting of the subcontract(s), which must include:
- (a) placing qualified small and minority businesses and women’s business enterprises on solicitation lists;
 - (b) assuring that small and minority businesses, and women’s business enterprises are solicited whenever they are potential sources;
 - (c) dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses, and women’s business enterprises; and
 - (d) using the services and assistance, as appropriate, of such organizations as the Small Business Administration and the Minority Business Development Agency of the Department of Commerce.

In accordance with FEMA procurement guidance:

A small business is a business that is independently owned and operated, not dominant in the field of operation in which it is bidding on Galveston County contracts and qualified as a small business under the Small Business Administration criteria and size standards at 13 C.F.R. Part 121.

A women’s business enterprise is a business enterprise that is: (a) at least 51 percent owned by one or more women or, in the case of a publicly owned business, at least 51 percent of the stock is owned by one or more women; and (b) whose management and daily operations are controlled by one or more women.

A minority business is a business that is (a) at least 51 percent owned by one or more minority group members or, in the case of a publicly owned business, at least 51 percent of the stock is owned by one or more minority group members; and (b) whose management and daily operations are controlled by one or more minority group members.

- 3.) **Davis-Bacon Act as amended (40 U.S.C. 3141-3148).** When required by Federal program legislation, all prime construction contracts in excess of \$2,000 must include a provision for compliance with the Davis-Bacon Act as supplemented by the Department of Labor regulations (29 C.F.R. Part 5, “Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction”). In accordance with the statute, contractor must be required to pay wages to laborers and mechanics at a rate not less than the prevailing wages specified in a wage determination made by the Secretary of Labor. In addition, contractors must be required to pay wages not less than once a week. The non-Federal entity (the County) must place a copy of the current prevailing wage determination issued by the Department of Labor in each solicitation. The decision to award a contract or subcontract must be condition upon the acceptance of the wage determination. The non-Federal entity must report all suspected or reported violations to the Federal awarding agency. The contract must also include a provision for compliance with the Copeland Anti-Kickback Act (40 U.S.C. § 3145) as supplemented by the Department of Labor regulations (29 C.F.R. Part 3, “Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States”).
- 4.) **Compliance with the Copeland “Anti-Kickback” Act.** Contractor is prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public work, to give up any part of the compensation to which the person is otherwise entitled. The non-Federal entity must report all suspected or reported violations to the Federal awarding agency. “Whoever, by force, intimidation, or threat of procuring dismissal from employment, or by any other manner whatsoever induces any person employed in the construction, prosecution, completion or repair of any public building, public work, or building or work financed in whole or in part by loans or grants from the United States, to give up any part of the compensation to which he is entitled under his contract of employment, shall be fined under this title [Title 18, U.S.C.] or imprisoned not more than five years, or both.” 18 U.S.C. § 874.

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- (a) Contractor shall comply with 18 U.S.C. § 874, 40 U.S.C. § 3145, and the requirements of 29 C.F.R. Part 3 as may be applicable, which are incorporated by reference into this contract.
- (b) The contractor or subcontractor shall insert in any subcontracts the clause above and such other clauses as the Federal awarding agency may be appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all of these contract clauses.
- (c) Breach. A breach of the contract clause above may be grounds for termination of the contract, and for debarment as a contractor and subcontractor as provided in 29 C.F.R. § 5.12.

5.) Contract Work Hours and Safety Standards Act.

- (a) Where applicable, all contracts awarded by the County in excess of \$100,000 that involve the employment of mechanics or laborers must include a provision for compliance with 40 U.S.C. §§ 3702 and 3704, as supplemented by the Department of Labor regulations at 29 C.F.R. Part 5. Under 40 U.S.C. § 3702 of the Contract Work Hours and Safety Standards Act, each contractor must be required to compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week. The requirements of 40 U.S.C. 3704 are applicable to construction work and provide that no laborer or mechanic must be required to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous. These requirements do not apply to the purchase of supplies or material or articles ordinarily available on the open market, or contractors for transportation or transmission of intelligence.
- (b) Compliance with the Contract Work Hours and Safety Standards Act.
 - (1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.
 - (2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1) of this subsection the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1) of this subsection, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard work week of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1) of this subsection.
 - (3) Withholding for unpaid wages and liquidated damages. The awarding Federal agency, State agency, or the County shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2) of this subsection.

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- (4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1) through (4) of this subsection and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1) through (4) of this subsection.
- 6.) **Rights to Inventions Made Under a Contractor Agreement.**
- (a) If the Federal award meets the definition of “funding agreement” under 37 C.F.R. § 401.2(a) and the recipient or subrecipient wishes to enter into a contract with a small business firm or nonprofit organization regarding the substitution of parties, assignment or performance of experimental, developmental, or research work under the “funding agreement,” the recipient or subrecipient must comply with the requirements of 37 C.F.R. Part 401, “Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements,” and any implementing regulations issued by the awarding agency.
- (b) Stafford Act Disaster Grants. This requirement does not apply to Public Assistance, Hazard Mitigation Grant Program, Crisis Counseling Assistance and Training Grant program, Disaster Case Management Grant Program, and Federal Assistance to Individuals and Households – Other Needs Assistance Grant Program, as FEMA awards under these programs do not meet the definition of “funding agreement.”
- (c) The regulations and 37 C.F.R. § 401.2(a) currently defines “funding agreement” as any contract, grant, or cooperative agreement entered into between any Federal agency, other than the Tennessee Valley Authority, and any contractor for the performance of experimental, developmental, or research work funded in whole or in part by the Federal government. This term also includes any assignment, substitution of parties, or subcontract of any type entered into for the performance of experimental, developmental, or research work under a funding agreement as defined in the first sentence of this paragraph.
- 7.) **Clean Air Act (42 U.S.C. §§ 7401 – 7671q) and the Federal Water Pollution Control Act 933 U.S.C. §§ 1251-1387), as amended.**
- (a) The contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. § 7401, et seq., and agrees to comply with all applicable standards, orders, or regulations issued pursuant to the Federal Water Pollution Contract Act, as amended, 33 U.S. C. § 1251, et seq.
- (b) The contractor agrees to report each violation of the Clean Air Act and/or the Federal Water Pollution Control Act to the Federal awarding agency, the State agency administering the grant, and the Regional Office of the Environmental Protection Agency (EPA) and understands and agrees that the Federal awarding agency, the State agency, and the EPA will, in turn, report each violation as required to assure notification to Galveston County, the Federal Emergency Management Agency, and the appropriate EPA Regional Office.
- 8.) **Debarment and Suspension (Executive Orders 12549 and 12689).** A contract award must not be made to parties listed on the government-wide exclusions in the System for Award Management (SAM), in accordance with the OMB guidelines at 2 C.F.R. Part 180 that implement Executive Orders 12549 and 12689. The Contractor is required to verify that none of the contractor, its principals (defined at 2 C.F.R. § 180.995), or its affiliates (defined at 2 C.F.R. § 180.905) are excluded (defined at 2 C.F.R. § 180.940) or disqualified (defined at 2 C.F.R. § 180.935).
- Contractor must comply with 2 C.F.R. Part 180, Subpart C and 2 C.F.R. Part 3000, Subpart C, and must include a requirement to comply with these regulations in any lower tier covered transaction it enters into. Proposer agrees to comply with the requirements of 2 C.F.R. Part 180, Subpart C, and 2 C.F.R. Part 3000, Subpart C, while this offer is valid and through the period of any contract that may arise from this offer. The Proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions.
- 9.) **Domestic Preferences for Procurements (2 C.F.R. § 200.323)**

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(a) As appropriate and to the extent consistent with law, the non-Federal entity should, to the greatest extent practicable under a Federal award, provide a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States (including but not limited to iron, aluminum, steel, cement, and other manufactured products). The requirements of this section must be included in all subawards including all contracts and purchase orders for work or products under this award.

(c) For purposes of this section:

(1) "Produced in the United States" means, for iron and steel products, that all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States.

(2) "Manufactured products" means items and construction materials composed in whole or in part of non-ferrous metals such as aluminum; plastics and polymer-based products such as polyvinyl chloride pipe; aggregates such as concrete; glass, including optical fiber; and lumber.

**10.) Prohibition on Certain Telecommunications and Video Surveillance Services or Equipment.
(2 C.F.R. § 200.216)**

(a) Recipients and subrecipients are prohibited from obligating or expending loan or grant funds to:

(1) Procure or obtain;

(2) Extend or renew a contract to procure or obtain; or

(2) Enter into a contract (or extend or renew a contract) to procure or obtain equipment, services, or systems that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system.

As described in Public Law 115-232, section 889, covered telecommunications equipment is telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities).

(i) For the purpose of public safety, security of government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities).

(ii) Telecommunications or video surveillance services provided by such entities or using such equipment.

(iii) Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of the National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.

(b) In implementing the prohibition under Public Law 115-232, section 889 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (FY 2019 NDAA), Pub. L. No. 115-232 (2018) and 2 C.F.R. 200.216, 200.327, 200.471, and Appendix II to C.F.R. Part 200, subsection (f), paragraph (1), heads of executive agencies administering loan, grant, or subsidy programs shall prioritize available funding and technical support to assist affected businesses, institutions and organizations as is reasonably necessary for those affected entities to transition from covered communications equipment and services, to procure

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replacement equipment and services, and to ensure that communications service to users and customers is sustained.

(c) See Public Law 115-232, section 889 for additional information.

(d) See also § 200.471.

11.) Procurement of Recovered Materials (2 C.F.R. § 200.323)

(a.) A non-Federal entity that is a State agency or agency of a political subdivision of the State and its contractors must comply with Section 6002 of the Solid Waste Disposal Act, Public Law No. 89-272 (1965) (codified as amended by the Resource Conservation and Recovery Act at 42 U.S.C. § 6962).

The requirements of Section 6002 include procuring only items designated in guidelines of the Environmental Protection Agency (EPA) at 40 CFR part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition, where the purchase price of the item exceeds \$10,000 or the value of the quantity acquired during the preceding fiscal year exceeded \$10,000; procuring solid waste management services in a manner that maximizes energy and resource recovery; and establishing an affirmative procurement program for procurement of recovered materials identified in the EPA guidelines.

(b.) In the performance of this contract, the contractor shall make maximum use of products containing recovered materials that are EPA-designated items unless the product cannot be acquired:

- (1) Competitively within a timeframe providing for compliance with the contract performance schedule;
- (2) Meeting contract performance requirements; or
- (3) At a reasonable price.

(e) Information about this requirement is available at EPA's Comprehensive Procurement Guidelines website, <http://www.epa.gov/cpg/>. The list of EPA-designated items is available at <https://www.epa.gov/cpg/products.htm>.

In the event of any discrepancy between the provisions in this Section 63 of General Provisions and provisions on the same subject elsewhere within this procurement, the most stringent shall control.

70. SECTION 3 CLAUSE (§ 135.38) – HOUSING AND URBAN DEVELOPMENT (HUD)

SECTION 3 ACT OF 1968 (12 U.S.C. 1701u and 24 CFR Part 135)

DISCLAIMER: THIS CONTRACT [IS NOT] HUD-FUNDED AND THEREFORE SECTION 3 [DOES NOT] APPLY TO THIS CONTRACT.

For any HUD-funded contract with a value in excess of \$100,000, Contractor and subcontractors must comply with the Section 3 Act of 1968. The purpose of Section 3 is to ensure that employment and other economic opportunities generated by certain HUD financial assistance shall, to the greatest extent feasible, and consistent with existing Federal, State and local laws and regulations, be directed to low- and very low-income persons, particularly those who are recipients of government assistance for housing, and to business concerns which provide economic opportunities to low- and very low-income persons.

Section 3 is triggered when the normal completion of construction and rehabilitation projects creates the need for new employment, contracting, or training opportunities.

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For any Section 3 Covered Contracts, Contractor and subcontractors must comply with all provisions of the Section 3 Act of 1968, contained under 24 CFR 135. Contractor and subcontractors must include the Section 3 Clause in its entirety, in every subcontract subject to compliance with regulations in 24 CFR 135.

Contractor and subcontractors must assure that to the greatest extent feasible, contracts for work to be performed in connection with the project are awarded to Section 3 Business Concerns. Contractor and subcontractors must post all new hire opportunities with the local Workforce Solutions Center and/or Work-in-Texas, in accordance with 24 CFR 135. The minimum numeric goals for Section 3 utilization are:

- 30 percent of total number of new hires are Section 3 Residents (i.e. 1 out of 3 new hires); 10 percent of all awarded construction contracts are awarded to Section 3 Business Concerns;
- 3 percent of all awarded non-construction contracts are awarded to Section 3 Business Concerns.

A. The work to be performed under this contract is subject to the requirements of section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u (section 3). The purpose of section 3 is to ensure that employment and other economic opportunities generated by HUD assistance or HUD-assisted projects covered by section 3, shall, to the greatest extent feasible, be directed to low- and very low-income persons, particularly persons who are recipients of HUD assistance for housing.

B. The parties to this contract agree to comply with HUD's regulations in 24 CFR part 135, which implement section 3. As evidenced by their execution of this contract, the parties to this contract certify that they are under no contractual or other impediment that would prevent them from complying with the part 135 regulations.

C. The contractor agrees to send to each labor organization or representative of workers with which the contractor has a collective bargaining agreement or other understanding, if any, a notice advising the labor organization or workers' representative of the contractor's commitments under this section 3 clause, and will post copies of the notice in conspicuous places at the work site where both employees and applicants for training and employment positions can see the notice. The notice shall describe the section 3 preference, shall set forth minimum number and job titles subject to hire, availability of apprenticeship and training positions, the qualifications for each; and the name and location of the person(s) taking applications for each of the positions; and the anticipated date the work shall begin.

D. The contractor agrees to include this section 3 clause in every subcontract subject to compliance with regulations in 24 CFR part 135, and agrees to take appropriate action, as provided in an applicable provision of the subcontract or in this section 3 clause, upon a finding that the subcontractor is in violation of the regulations in 24 CFR part 135. The contractor will not subcontract with any subcontractor where the contractor has notice or knowledge that the subcontractor has been found in violation of the regulations in 24 CFR part 135.

E. The contractor will certify that any vacant employment positions, including training positions, that are filled (1) after the contractor is selected but before the contract is executed, and (2) with persons other than those to whom the regulations of 24 CFR part 135 require employment opportunities to be directed, were not filled to circumvent the contractor's obligations under 24 CFR part 135.

F. Noncompliance with HUD's regulations in 24 CFR part 135 may result in sanctions, termination of this contract for default, and debarment or suspension from future HUD assisted contracts.

G. With respect to work performed in connection with section 3 covered Indian housing assistance, section 7(b) of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450e) also applies to the

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work to be performed under this contract. Section 7(b) requires that to the greatest extent feasible (i) preference and opportunities for training and employment shall be given to Indians, and (ii) preference in the award of contracts and sub contracts shall be given to Indian organizations and Indian-owned Economic Enterprises. Parties to this contract that are subject to the provisions of section 3 and section 7(b) agree to comply with section 3 to the maximum extent feasible, but not in derogation of compliance with section

71. REQUIRED CONTRACT PROVISIONS

The Part 200 Uniform Requirements require that non-Federal entities' contracts contain the applicable provisions described in Appendix II to Part 200 — "Contract Provisions for Non-Federal Entity Contracts Under Federal Awards." Violations of law will be referred to the proper authority in the applicable jurisdiction. All Prime Contractors awarded contracts by Galveston County which are federally funded, in whole or in part, are required to comply with the provisions below. Additionally, Prime Contractors with Galveston County are required to include the provisions below in any contracts executed with subcontractors performing the scope of work and shall pass these requirements on to its subcontractors and third-party contractors, as applicable. In addition to other provisions required by the relevant Federal agency, State of Texas, or Galveston County, all contracts made by Galveston County under the Federal award shall contain provisions covering the following, as applicable.

ACCESS TO RECORDS & RECORD RETENTION (2 CFR 200.336)

Contractor must provide Galveston County, the State of Texas, the Texas General Land Office (GLO), the U.S. Department of Housing and Urban Development (HUD), the FEMA Administrator, the Inspectors General, the Comptroller General of the United States, or any of their pass-through entities or authorized representatives access to any books, documents, papers, and records of the Contractor and its subcontractors which are directly pertinent to this contract/project for the purposes of making/responding to audits, examinations, excerpts, and transcriptions. The right also includes timely and reasonable access to the Contractor's personnel for the purpose of interview and discussion related to such documents. Contractor must keep records within Galveston County or note in bid that records will be available within the boundaries of Galveston County to those representatives within twenty-four (24) hours of request by the County. Contractor must maintain all records pertaining to the project for seven (7) years after receiving final payment and after all other pending matters have been closed.

ACCESSIBILITY (24 CFR 570.614) & SECTION 504 (29 U.S.C. Section 794 and 24 CFR Parts 8-9)

Contractor shall comply with all federal, state and local laws and regulations which prohibit recipients of federal funding from discriminating against individuals with disabilities. Applicable laws and regulations with which Contractor shall comply shall include, but are not limited to, the following: Section 504 of the Rehabilitation Act of 1973 (29 U.S.C. Section 794) (24 CFR Parts 8-9); Title II of the Americans with Disabilities Act of 1990; the Architectural Barriers Act of 1968 (42 U.S.C. 4151-4157); the Uniform Federal Accessibility Standards (Appendix A to 24 CFR Part 40 and Appendix A to 41 CFR Part 101-19, subpart 101-19.6); the Americans with Disabilities Act (42 U.S.C. 12131; 47 U.S.C. 155, 201, 218, and 225); Texas Administrative Code, Title 10, Chapter 60, Subchapter (B) the Texas Architectural Barriers Act (TABAA); the Architectural Barriers (AB) Rules; and the Texas Accessibility Standards (TAS).

BYRD ANTI-LOBBYING AGREEMENT (2 CFR 200 APPENDIX II (J) AND 24 CFR 570.303)

Pursuant to 31 U.S.C.A. § 1352 (2003), if at any time during the contract term funding to contract exceeds \$100,000.00, the Contractor shall file with the County the Federal Standard Form LLL titled "Disclosure Form to Report Lobbying." Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. 1352. Each tier must also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the non-federal award.

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CIVIL RIGHTS ACT OF 1964 (Title VI 42 U.S.C. § 2000d)

Title VI of the Civil Rights Act of 1964, Section 109 of the Community Development Act of 1974, Section 504 of the Rehabilitation Act of 1973 (29 U.S.C. Section 794) (24 CFR Parts 8-9), and the Americans with Disabilities Act of 1990 (42 U.S.C. 12131; 47 U.S.C. 155, 201, 218, and 225), prohibits Contractors from excluding or denying individuals benefits or participation in this project on the basis of race, color, religion, national origin, sex, or disability. The provisions require that no person in the United States shall on the ground of race, color, religion, national origin, sex, or disability be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity funded in whole or in part with community development funds made available pursuant to these Acts.

For purposes of this Part “program or activity” is defined as any function conducted by an identifiable administrative unit of the recipient, or private Contractor receiving community development funds or loans from the recipient. “Funded in whole or in part with community development funds” means that community development funds in any amount in the form of grants or proceeds from HUD guaranteed loans have been transferred by the recipient or a subrecipient to an identifiable administrative unit and disbursed in a program or activity. A Contractor may not, under any program or activity to which the regulations of this Part may apply directly or through contractual or other arrangements, on the grounds of race, color, national origin, or sex:

- a. Deny any facilities, services, financial aid or other benefits provided under the program or activity;
- b. Provide any facilities, services, financial aid or other benefits, which are different, or are provided in a different form from that provided to others under the program or activity;
- c. Subject to segregated or separate treatment in any facility in, or in any matter of process related to receipt of any service or benefit under the program or activity;
- d. Restrict in any way access to, or in the enjoyment of any advantage or privilege enjoyed by others in connection with facilities, services, financial aid or other benefits under the program or activity;
- e. Treat an individual differently from others in determining whether the individual satisfies any admission, enrollment, eligibility, membership, or other requirement or condition which the individual must meet in order to be provided any facilities, services or other benefit provided under the program or activity; and
- f. Deny an opportunity to participate in a program or activity as an employee.

CLEAN AIR ACT (2 CFR Appendix II to Part 200 (G))

Pursuant to 2 CFR Appendix II to Part 200 (G), if at any time during the contract term funding to contract exceeds \$150,000, the Contractor must comply with all provisions of the Clean Air Act (42 U.S.C. 85) and Section 308 of the Federal Water Pollution Control Act (33 U.S.C. 1251-1387), as amended. Contractors securing a contract in excess of \$150,000.00 shall not expend such funds by making use of subcontracting with facilities included on the Environmental Protection Agency List of Violating Facilities as per Section 306 of the Clean Air Act, Section 508 of The Clean Water Act, Executive Order 11738, and Environmental Protection Agency Regulations 40 CFR. For any subcontractors under this contract receiving contracts in excess of \$150,000 Contractor is required to include a provision that requires compliance with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 85) and Section 308 Federal Water Pollution Control Act as amended (33 U.S.C. 1251-1387). Violations shall be reported to the Federal awarding agency and the Regional Office of the Environmental Protection Agency (EPA).

CONTRACT WORK HOURS AND SAFETY STANDARDS ACT (2 CFR Appendix II to Part 200 (E))

Pursuant to 2 CFR 200 Appendix II (E), if at any time during the contract term funding to contract exceeds \$100,000, the Contractor must comply with the Contract Work Hours and Safety Standards Act (40 U.S.C. 3701-3708). Where

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applicable, all contracts awarded in excess of \$100,000 that involve the employment of mechanics or laborers must include a provision for compliance with 40 U.S.C. 3702 and 3704, as supplemented by Department of Labor regulations (29 CFR Part 5). Under 40 U.S.C. 3702 of the Act, each contractor must be required to compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week. The requirements of 40 U.S.C. 3704 are applicable to construction work and provide that no laborer or mechanic must be required to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous. These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence

- (1) Overtime Requirements – No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.
- (2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1) of this section the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1) of this section.
- (3) Withholding for unpaid wages and liquidated damages. The (write in the name of the Federal agency or the loan or grant recipient) shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2) of this section.
- (4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1) through (4) of this section.

COPELAND “ANTI-KICKBACK” ACT (40 U.S.C. 3145)

Pursuant to 2 CFR Appendix II to Part 200 (D), Contractor must comply with the provisions of the Copeland “Anti-Kickback” Act (40 U.S.C. 3145), as supplemented by Department of Labor regulations (29 CFR Part 3, “Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the

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United States”). The Act provides that each vendor, contractor, subcontractor, or subrecipient shall be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public work, to give up any part of the compensation to which he or she is otherwise entitled. Contractor shall include this provision in all contracts between itself and any subcontractors in connection with the services performed under this Contract. Galveston County shall report all suspected or reported violations to the Federal awarding agency.

COST PLUS CONTRACTING PROHIBITED (2 CFR 200.323(D))

Cost-plus-a-percentage-of-cost (CPPC) contracts are prohibited by 2 CFR 200.323(d). The cost plus a percentage of cost and percentage of construction cost methods of contracting must never be used, including in subcontracts and third-party contracts. A cost-plus contract is one that is structured to pay the contractor or subcontractor their actual costs incurred, plus a fixed percent for profit or overhead.

A cost-plus-a-percentage-of-cost (CPPC) contract is a contract containing some element that obligates Galveston County or Contractor to pay a contractor or subcontractor an amount (in the form of either profit or cost), undetermined at the time the contract was made, to be incurred in the future, and based on a percentage of future costs. The inclusion of an overall contract ceiling price does not make these forms of contracts acceptable. This type of contract is prohibited because there is no incentive for the contractor or subcontractor to keep its incurred costs low. Instead, there is a reverse incentive for the contractor or subcontractor to continue to incur additional costs in order to continue to drive the percentage of cost up. In other words, increased spending by the contractor will yield higher profits. This prohibition applies to all work, regardless of the circumstances, and applies to subcontracts of the contractor cases where the prime contract is a cost-reimbursement type contract or subject to price redetermination.

DAVIS BACON AND RELATED ACTS (2 CFR 200 APPENDIX II (D))

Pursuant to 2 CFR 200 Appendix II (D), for any contract in excess of \$2,000, Contractor must comply with the Davis Bacon and Related Acts, and the requirements shall be applicable to any labor or mechanic work completed in connection with this contract which fall under the Davis Bacon Act. Any Contractor awarded under this contract is required to comply with the Davis Bacon Act (40 U.S.C. 3141-3144, and 3146-3148) as supplemented by Department of Labor regulations (29 CFR part 5) and with the Copeland “Anti-Kickback” Act (18 U.S.C. 874; 40 U.S.C. 3145) as supplemented in Department of Labor regulations (29 CFR part 3). In accordance with the statute, Contractors are required to pay wages to laborers and mechanics at a rate not less than the prevailing wages specified in a wage determination made by the Secretary of Labor. In addition, contractors must be required to pay wages not less than once a week.

If Davis Bacon is applicable, Galveston County will provide a copy of the current Davis Bacon Wage Decision with the solicitation. The decision to award a contract or subcontract shall be conditioned upon the acceptance of the wage determination. Contractor shall submit certified payroll of contractor and all subcontractors on a weekly basis in the format required by the County. At County’s request, Contractor shall make available and shall require its subcontractors to make available, copies of cancelled checks and check stubs for comparisons by the County or its agents.

Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR Part 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR Part 5.5(a)(1)(ii)) and the Davis Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following. The Statement of Compliance can be found on page 2 of the WH-347 form, and/or additional certifications of compliance may be required by Galveston County. Any Statement of Compliance is

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subject to the penalties provided by 18 U.S.C. § 1001, namely, a fine, possible imprisonment of not more than 5 years, or both. Accordingly, the party signing the statement should have knowledge of the facts represented as true. Contractor must include this provision in all contracts between itself and any subcontractors in connection with the services performed under this Contract. Galveston County shall report all suspected or reported violations to the Federal awarding agency, as applicable.

DEBARMENT / SUSPENSION AND VOLUNTARY EXCLUSION (2 CFR Appendix II to Part 200 (I))

Pursuant to 2 CFR Appendix II to Part 200 (I), a Contract meeting the definition in 2 C.F.R. § 180.220 must not be made to parties listed on the System for Award Management (SAM) Exclusion lists, in accordance with the OMB guidelines at 2 CFR 180 that implement Executive Orders 12549 (3 CFR part 1986 Comp., p. 189) and 12689 (3 CFR part 1989 Comp., p. 235), "Debarment and Suspension." SAM Exclusions contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549.

Pursuant to Executive Orders 12549 and 12689, a contract award shall not be made to parties listed on the government-wide exclusions in the System for Award Management (SAM), in accordance with the OMB guidelines at 2 CFR 180 that implement Executive Orders 12549 (3 CFR part 1986 Comp., p. 189) and 12689 (3 CFR part 1989 Comp., p. 235). SAM Exclusions contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549. A contract award must not be made to parties listed in the SAM Exclusions. SAM exclusions can be accessed at www.sam.gov.

Additionally, no contracts shall be awarded to any Contractor that has been debarred, suspended, or otherwise excluded from or ineligible for participation in any federal programs, including but not limited to the Department of Health and Human Work (DHHS), Office of Inspector General (OIG) - List of Excluded Individuals & Entities (LEIE); U.S. General Services Administration (GSA) – Excluded Parties List System (EPLS); All States (50) Health & Human Work Commission Medicaid OIG Sanction List; Government Terrorist Watch List (OFAC / Patriot Act); Department of Commerce, Bureau of Industry and Security, Denied Persons List; and Department of Homeland Security, Immigration and Customs Enforcement (ICE) Most Wanted.

This contract is a covered transaction for purposes of compliance with Title 2 C.F.R. parts 180 and 3000, and as such the Contractor is required to verify that none of the contractor, its principals (as defined at 2 C.F.R. § 180.995), or its affiliates (as defined at 2 C.F.R. § 180.905) are excluded (as defined at 2 C.F.R. § 180.940) or disqualified (as defined at 2 C.F.R. § 180.935). These regulations restrict awards, subawards, and contracts with certain parties that are debarred, suspended, or otherwise excluded from or ineligible for participation in Federal assistance programs and activities (See 2 C.F.R Part 200, Appendix II). The Contractor must comply with 2 C.F.R. part 180, subpart C and 2 C.F.R. part 3000, subpart C and shall include this requirement and similar certification in all contracts between itself and any subcontractors in connection with the services performed under this Contract.

The Contractor confirms that it is eligible or otherwise not disqualified or prohibited from participation in federal or state assistance programs under Executive Order 12549, Debarment and Suspension. Additionally, the Contractor warrants that it is not debarred, suspended, or otherwise excluded from or ineligible for participation in any federal programs, including but not limited to the following: Department of Health and Human Work (DHHS), Office of Inspector General (OIG) - List of Excluded Individuals & Entities (LEIE); U.S. General Services Administration (GSA) – Excluded Parties List System (EPLS); All States (50) Health & Human Work Commission Medicaid OIG Sanction List; Government Terrorist Watch List (OFAC / Patriot Act); Department of Commerce, Bureau of Industry and Security, Denied Persons List; and Department of Homeland Security, Immigration and Customs Enforcement (ICE) Most Wanted. Galveston County reserves the right to verify any contractor's status and document instances of debarment, suspension, or other ineligibility.

Contractor shall verify that all subcontractors performing work under this Contract are not debarred, disqualified, or otherwise prohibited from participation in accordance with the requirements above. The Contractor further must notify

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Galveston County in writing immediately if Contractor or its subcontractors are not in compliance with Executive Order 12549 during the term of this contract. Contractor shall include this provision in all contracts between itself and any subcontractors in connection with the services performed under this Contract.

If it is found that the Contractor did not comply or is not in compliance with Executive Order 12549 (2 C.F.R. part 180, subpart C and 2 C.F.R. part 3000, subpart C), the Contractor may be subject to available remedies, including but not limited to, refunding Galveston County for any payments made to the Contractor while ineligible, and also acknowledges that the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment.

EQUAL EMPLOYMENT OPPORTUNITY (41 CFR 60-1.4(b) and 2 CFR 200 APPENDIX II (C))

Contractor must comply with, and incorporate or cause to be incorporated into any contract for construction work, or modification thereof, the Equal Employment Opportunity provisions as follows:

During the performance of this contract, the contractor agrees as follows:

1. The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following:

Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

2. The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.
3. The contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the contractor's legal duty to furnish information.
4. The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
5. The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

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6. The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
7. In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
8. The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance:

Provided, however, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

The Contractor further agrees that it will be bound by the above equal opportunity clause with respect to its own employment practices when it participates in federally assisted construction work: Provided, That if the applicant so participating is a State or local government, the above equal opportunity clause is not applicable to any agency, instrumentality or subdivision of such government which does not participate in work on or under the contract.

The Contractor agrees that it will assist and cooperate actively with the administering agency and the Secretary of Labor in obtaining the compliance of contractors and subcontractors with the equal opportunity clause and the rules, regulations, and relevant orders of the Secretary of Labor, that it will furnish the administering agency and the Secretary of Labor such information as they may require for the supervision of such compliance, and that it will otherwise assist the administering agency in the discharge of the agency's primary responsibility for securing compliance.

The Contractor further agrees that it will refrain from entering into any contract or contract modification subject to Executive Order 11246 of September 24, 1965, with a contractor debarred from, or who has not demonstrated eligibility for, Government contracts and federally assisted construction contracts pursuant to the Executive Order and will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon contractors and subcontractors by the administering agency or the Secretary of Labor pursuant to Part II, Subpart D of the Executive Order. In addition, the Contractor agrees that if it fails or refuses to comply with these undertakings, the administering agency may take any or all of the following actions: Cancel, terminate, or suspend in whole or in part this grant (contract, loan, insurance, guarantee); refrain from extending any further assistance to the Contractor under the program with respect to which the failure or refund occurred until satisfactory assurance of future compliance has been received from such Contractor; and refer the case to the Department of Justice for appropriate legal proceedings. Contractor must include the equal opportunity clause in each of its nonexempt subcontracts, and to require all non-exempt subcontractors to include the equal opportunity clause in each of its nonexempt subcontracts.

EQUAL EMPLOYMENT OPPORTUNITY FOR WORKERS WITH DISABILITIES (48 CFR 52.22236)

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During the performance of this contract, the Contractor must comply with required Equal Employment Opportunity for Workers with Disabilities provisions.

Contractor shall include the following equal opportunity clause in each of its covered Government contracts or subcontracts (and modifications, renewals, or extensions thereof if not included in the original contract):

- a. Equal opportunity clause. The Contractor shall abide by the requirements of the equal opportunity clause at 41 CFR 60-741.5(a), as of March 24, 2014. This clause prohibits discrimination against qualified individuals on the basis of disability and requires affirmative action by the Contractor to employ and advance in employment qualified individuals with disabilities.
- b. Subcontracts. The Contractor shall include the terms of this clause in every subcontract or purchase order in excess of \$15,000 unless exempted by rules, regulations, or orders of the Secretary, so that such provisions will be binding upon each subcontractor or vendor. The Contractor shall act as specified by the Director, Office of Federal Contract Compliance Programs of the U.S. Department of Labor, to enforce the terms, including action for noncompliance. Such necessary changes in language may be made as shall be appropriate to identify properly the parties and their undertakings.

EQUAL EMPLOYMENT OPPORTUNITY FOR VEVRAA PROTECTED VETERANS (41 CFR 60.300)

Galveston County is an equal opportunity employer of protected veterans. During the performance of this contract, the Contractor must comply with required Equal Employment Opportunity for VEVRAA Protected Veterans provisions. Contractor shall include the following equal opportunity clause in each of its covered Government contracts or subcontracts (and modifications, renewals, or extensions thereof if not included in the original contract):

- a. The definitions set forth in 41 CFR 60-300.2 apply to the terms used throughout this Clause, and they are incorporated herein by reference.
- b. The contractor shall not discriminate against any employee or applicant for employment because he or she is a disabled veteran, recently separated veteran, active-duty wartime or campaign badge veteran, or Armed Forces service medal veteran (hereinafter collectively referred to as "protected veteran(s)") in regard to any position for which the employee or applicant for employment is qualified. The contractor agrees to take affirmative action to employ, advance in employment and otherwise treat qualified individuals without discrimination based on their status as a protected veteran in all employment practices, including the following:
 - i Recruitment, advertising, and job application procedures.
 - ii Hiring, upgrading, promotion, award of tenure, demotion, transfer, layoff, termination, right of return from layoff and rehiring.
 - iii Rates of pay or any other form of compensation and changes in compensation.
 - iv Job assignments, job classifications, organizational structures, position descriptions, lines of progression, and seniority lists.
 - v Leaves of absence, sick leave, or any other leave.
 - vi Fringe benefits available by virtue of employment, whether or not administered by the contractor.

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- vii Selection and financial support for training, including apprenticeship, and on-the-job training under 38 U.S.C. 3687, professional meetings, conferences, and other related activities, and selection for leaves of absence to pursue training.
 - viii Activities sponsored by the contractor including social or recreational programs.
 - ix Any other term, condition, or privilege of employment.
- c. The contractor shall immediately list all employment openings which exist at the time of the execution of this contract and those which occur during the performance of this contract, including those not generated by this contract and including those occurring at an establishment of the contractor other than the one where the contract is being performed, but excluding those of independently operated corporate affiliates, with the appropriate employment service delivery system where the opening occurs. Listing employment openings with the state workforce agency job bank or with the local employment service delivery system where the opening occurs will satisfy the requirement to list jobs with the appropriate employment service delivery system. In order to satisfy the listing requirement described herein, contractors must provide information about the job vacancy in any manner and format permitted by the appropriate employment service delivery system which will allow that system to provide priority referral of veterans protected by VEVRAA for that job vacancy. Providing information on employment openings to a privately run job service or exchange will satisfy the contractor's listing obligation if the privately run job service or exchange provides the information to the appropriate employment service delivery system in any manner and format that the employment service delivery system permits which will allow that system to provide priority referral of protected veterans.
- d. Listing of employment openings with the appropriate employment service delivery system pursuant to this clause shall be made at least concurrently with the use of any other recruitment source or effort and shall involve the normal obligations which attach to the placing of a bona fide job order, including the acceptance of referrals of veterans and nonveterans. The listing of employment openings does not require the hiring of any particular job applicants or from any particular group of job applicants, and nothing herein is intended to relieve the contractor from any requirements in Executive orders or regulations regarding nondiscrimination in employment.
- e. Whenever a contractor, other than a state or local governmental contractor, becomes contractually bound to the listing provisions in paragraphs 2 and 3 of this clause, it shall advise the employment service delivery system in each state where it has establishments that: (a) It is a Federal contractor, so that the employment service delivery systems are able to identify them as such; and (b) it desires priority referrals from the state of protected veterans for job openings at all locations within the state. The contractor shall also provide to the employment service delivery system the name and location of each hiring location within the state and the contact information for the contractor official responsible for hiring at each location. The "contractor official" may be a chief hiring official, a Human Resources contact, a senior management contact, or any other manager for the contractor that can verify the information set forth in the job listing and receive priority referrals from employment service delivery systems. In the event that the contractor uses any external job search organizations to assist in its hiring, the contractor shall also provide to the employment service delivery system the contact information for the job search organization(s). The disclosures required by this paragraph shall be made simultaneously with the contractor's first job listing at each employment service delivery system location after the effective date of this final rule. Should any of the information in the disclosures change since it was last reported to the employment service delivery system location, the contractor shall provide updated information simultaneously with its next job listing. As long as the

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contractor is contractually bound to these provisions and has so advised the employment service delivery system, there is no need to advise the employment service delivery system of subsequent contracts. The contractor may advise the employment service delivery system when it is no longer bound by this contract clause.

- f. The provisions of paragraphs 2 and 3 of this clause do not apply to the listing of employment openings which occur and are filled outside of the 50 states, the District of Columbia, the Commonwealth of Puerto Rico, Guam, the Virgin Islands, American Samoa, the Commonwealth of the Northern Mariana Islands, Wake Island, and the Trust Territories of the Pacific Islands.
- g. As used in this clause:
 - i. All employment openings include all positions except executive and senior management, those positions that will be filled from within the contractor's organization, and positions lasting three days or less. This term includes full-time employment, temporary employment of more than three days' duration, and part-time employment.
 - ii. Executive and senior management means: (1) Any employee (a) compensated on a salary basis at a rate of not less than \$455 per week (or \$380 per week, if employed in American Samoa by employers other than the Federal Government), exclusive of board, lodging or other facilities; (b) whose primary duty is management of the enterprise in which the employee is employed or of a customarily recognized department or subdivision thereof; (c) who customarily and regularly directs the work of two or more other employees; and (d) who has the authority to hire or fire other employees or whose suggestions and recommendations as to the hiring, firing, advancement, promotion or any other change of status of other employees are given particular weight; or (2) any employee who owns at least a bona fide 20-percent equity interest in the enterprise in which the employee is employed, regardless of whether the business is a corporate or other type of organization, and who is actively engaged in its management.
 - iii. Positions that will be filled from within the contractor's organization means employment openings for which no consideration will be given to persons outside the contractor's organization (including any affiliates, subsidiaries, and parent companies) and includes any openings which the contractor proposes to fill from regularly established "recall" lists. The exception does not apply to a particular opening once an employer decides to consider applicants outside of his or her own organization.
- h. The contractor shall comply with the rules, regulations, and relevant orders of the Secretary of Labor issued pursuant to the Act.
- i. In the event of the contractor's noncompliance with the requirements of this clause, actions for noncompliance may be taken in accordance with the rules, regulations, and relevant orders of the Secretary of Labor issued pursuant to the Act.
- j. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices in a form to be prescribed by the Director, Office of Federal Contract Compliance Programs, provided by or through the contracting officer. Such notices shall state the rights of applicants and employees as well as the contractor's obligation under the law to take affirmative action to employ and advance in employment qualified employees and applicants who are protected veterans. The contractor must ensure that

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applicants or employees who are disabled veterans are provided the notice in a form that is accessible and understandable to the disabled veteran (e.g., providing Braille or large print versions of the notice, posting the notice for visual accessibility to persons in wheelchairs, providing the notice electronically or on computer disc, or other versions). With respect to employees who do not work at a physical location of the contractor, a contractor will satisfy its posting obligations by posting such notices in an electronic format, provided that the contractor provides computers that can access the electronic posting to such employees, or the contractor has actual knowledge that such employees otherwise are able to access the electronically posted notices. Electronic notices for employees must be posted in a conspicuous location and format on the company's intranet or sent by electronic mail to employees. An electronic posting must be used by the contractor to notify job applicants of their rights if the contractor utilizes an electronic application process. Such electronic applicant notice must be conspicuously stored with, or as part of, the electronic application.

- k. The contractor will notify each labor organization or representative of workers with which it has a collective bargaining agreement or other contract understanding that the contractor is bound by the terms of VEVRAA and is committed to take affirmative action to employ and advance in employment, and shall not discriminate against, protected veterans.
- l. The contractor will include the provisions of this clause in every subcontract or purchase order of \$100,000 or more, unless exempted by the rules, regulations, or orders of the Secretary issued pursuant to VEVRAA so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the Director, Office of Federal Contract Compliance Programs, may direct to enforce such provisions, including action for noncompliance.
- m. The contractor must, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to their protected veteran status.
- n. The Contractor shall forfeit as a penalty to the County who administers the subject Project receiving Federal assistance, Sixty Dollars (\$60.00) for each worker, employed for each calendar day, or a portion thereof, such worker is paid less than the said stipulated rates for any work done under this Project, by him/her or by any contractor under him/her.
- o. All contractors shall keep, or cause to be kept, an accurate record showing the names of all workers, also the actual per diem wages paid to each of such workers.

FAIR LABOR STANDARDS ACT

Contractor must comply the Fair Labor Standards Act of 1938 (29 U.S.C. Section 201 et seq.) as now or hereafter amended, which regulates wage, hour and other employment practices that govern the use of funds provided and the employment of personnel under this contract. The Contractor warrants that it will pay all its workers all monies earned by its workers including, but not limited to regular wages, any overtime compensation, or any additional payments pursuant to the Fair Labor Standards Act, 29 United States Code (U.S.C.) Section 207 9a(1), as amended; the Texas Pay Day Act; the Equal Pay Act; Title VII of the Civil Rights Act of 1964, 42 U.S.C. Section 2000, et al., as amended; or any provisions of the Texas Labor Code Ann., as amended.

FLOOD DISASTER PROTECTION ACT OF 1973 (24 CFR 570.605)

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Contractor must comply with the provisions in 24 CFR 570.605, Section 202(a) of the Flood Disaster Protection Act of 1973 (42 U.S.C. 4106), and the regulations in 44 CFR Parts 59-79.

GREEN BUILDING STANDARDS

At a minimum, Contractors and subcontractors must comply with local codes and any applicable national building codes for any work involving rehabilitation or construction, including design. When a contract is funded, in whole or in part, by HUD funding, Contractors must comply with applicable Green Building standards to the maximum extent feasible. Green Building standards may apply to single-family properties, multifamily properties, or both and may include, but are not limited to best practices defined under LEED, Enterprise Green Communities, or NAHB National Green Building Standards and may include specific measures for water conservation, energy efficiency, and indoor air quality. Contractor and subcontractors must comply with the following standards, as applicable:

- 2009 ICC International Energy Conservation Code (IECC)
- ASHRAE 90.1-2007, which sets minimum energy standards for buildings except low-rise residential buildings
- ASHRAE 62.1-2010 and 62.2-2010, which set minimum standards for ventilation for indoor air quality for common areas in mid- and high-rise buildings, and low-rise residential buildings, respectively.
- New or replacement residential housing, when funded by CDBG-DR grants, must adhere to Green Building standards, including Energy Star Certified Homes or Energy Star for Multifamily High Rise and other applicable green building requirements.
- Moderate residential housing rehabilitation, when funded by CDBG-DR grants, must comply with the Community Planning & Development (CPD) Retrofit Checklist and provide Energy Star appliances, Water Sense or FEMP products if replaced.
- New or replacement residential housing, when funded by CDBG-DR grants, must adhere to Green Building standards, including Energy Star Certified Homes or Energy Star for Multifamily High Rise and other applicable green building requirements.

HOLD HARMLESS AGREEMENT

Contractor shall indemnify, defend, and hold harmless Galveston County from all claims for personal injury, death and/or property damage resulting directly or indirectly from contractor's performance. Contractor shall procure and maintain, with respect to the subject matter of this Request for Proposals, appropriate insurance coverage including, at a minimum, public liability and property damage with adequate limits to cover contractor's liability as may arise directly or indirectly from work performed under terms of this Request for Proposals. Certification of such coverage must be provided to the County upon request.

The Federal Government is not a party to this contract and is not subject to any obligations or liabilities to the non-Federal entity, contractor, or any other party pertaining to any matter resulting from the contract.

LEAD-BASED PAINT (24 CFR 570.608)

Contractor and subcontractors must comply with the provisions found in 24 CFR 570.608, the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. 4821-4846), the Residential Lead Based Paint Hazard Reduction Act of 1992 (U.S.C. 4851-4856, and 24 CFR Part 35, subparts A, B, J, K, and R. This Article 2(f) is to be included in all subcontracts, for work in connection with this Contract, which relate to residential structures.

NON-COLLUSION (The Sherman Act)

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Contractor must comply with the requirements of The Sherman Act, which prohibit collusion. Collusion occurs when two persons or representatives of an entity or organization make an agreement to deceive or mislead another. Such agreements are usually secretive and involve fraud or gaining an unfair advantage over a third party, competitors, consumers or others with whom they are negotiating. The collusion, therefore, makes the bargaining process inherently unfair. Collusion can involve promises of future benefits, price or wage fixing, kickbacks, or misrepresenting the independence of the relationship between the colluding parties.

The Sherman Act prohibits any agreement among competitors to fix prices, rig bids, or engage in other anticompetitive activity. Collusion, bid rigging, or other anticompetitive activity is considered a felony. Contractor shall not in any way, directly or indirectly:

- a. Collude, conspire, or agree with any other person, firm, corporation, Proposer or potential Proposer to the amount of this Bid or the terms or conditions of this Bid.
- b. Pay or agree to pay any other person, firm, corporation Proposer or potential Proposer any money or anything of value in return for assistance in procuring or attempting to procure a contract or in return for establishing the prices in the attached Bid or the Bid of any other Proposer.
- c. Assemble in coordination with any other organization in an attempt to fix the price of the work.

Contractors are expected to report any suspected fraud, collusion, or impropriety from the inception of solicitation through the end of the contract term.

NON-SEGREGATED FACILITIES
"Prohibition of Segregated Facilities"

- a. Segregated facilities means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees, that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, sex, sexual orientation, gender identity, or national origin because of written or oral policies or employee custom. The term does not include separate or single-user rest rooms or necessary dressing or sleeping areas provided to assure privacy between the sexes.

Sexual orientation has the meaning given by the Department of Labor's Office of Federal Contract Compliance Programs and is found at www.dol.gov/ofccp/LGBT/LGBT_FAQs.html.

- b. The Contractor agrees that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The Contractor agrees that a breach of this clause is a violation of the Equal Opportunity clause in this contract.
- c. The Contractor shall include this clause in every subcontract and purchase order that is subject to the Equal Opportunity clause of this contract.

PARTICIPATION BY MINORITY & WOMEN-OWNED BUSINESS ENTERPRISES (2 CFR 200.321)

Contractor must comply with the Minority and Women-owned Business Enterprise participation requirements under 2 CFR 200.321. Contractors must take all affirmative steps necessary to subcontract with Minority and Women-owned Business Enterprises (MWBES) to assure that MWBES are used when possible. These affirmative steps shall include:

- A. Placing qualified small and minority businesses and women's business enterprises on solicitation lists;

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- B. Assuring that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources;
- C. Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses, and women's business enterprises;
- D. Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority businesses, and women's business enterprises; and
- E. Using the services and assistance, as appropriate, of such organizations as the Small Business Administration and the Minority Business Development Agency of the Department of Commerce.

The State of Texas maintains a Historically Underutilized Business Program, which identifies any business at least 51 percent owned by an Asian Pacific American, Black American, Hispanic American, Native American, American woman and/or Service-Disabled Veteran, who resides in Texas and actively participate in the control, operations and management of the entity's affairs as a Historically Underutilized Business (also considered MWBE). Contractors who wish to check the status of a firm may visit <https://comptroller.texas.gov/purchasing/vendor/hub/>.

Contractors and subcontractors are required to facilitate Minority & Women-Owned Business Enterprise participation. Contractors are encouraged to utilize MWBEs / HUB firms as subcontractors, subconsultants, or suppliers in order to comply with the requirements and may check for firms who perform relevant work by searching <https://comptroller.texas.gov/purchasing/vendor/hub/>.

Contractor and subcontractors must facilitate Minority & Women-Owned Business Enterprise participation and take all affirmative steps to utilize MWBEs / HUB firms as subcontractors, subconsultants, or suppliers throughout the life of the Contract.

POTENTIAL CONFLICTS OF INTEREST

Pursuant to 2 CFR 200.112, Contractor must comply with disclosure requirements in accordance with Texas Local Government Code, Chapter 176. Contractor shall not use funds to directly or indirectly pay any person for influencing or attempting to influence any public employee or official in connection with the awarding of any contract or the extension, continuation, renewal, amendment or modification of any contract. By law, the Conflict of Interest Questionnaire (provided by the Texas Ethics Commission at www.ethics.state.tx.us) must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the Contractor becomes aware of facts that require the statement to be filed.

This law requires persons desiring to do business with the County to disclose any gifts valued in excess of \$250 given to any County Official or the County Official's family member, or employment of any County Official or the County Official's family member during the preceding twelve (12) month period. The disclosure questionnaire must be filed with the Galveston County Clerk. Refer to Texas Local Government Code, Chapter 176 for the details of this law.

An outside consultant or contractor is prohibited from submitting a bid for services on a Galveston County project of which the consultant or contractor was a designer or other previous contributor, or was an affiliate, subsidiary, joint venture or was in any other manner associated by ownership to any party that was a designer or other previous contributor. If such a consultant or contractor submits a prohibited bid, that bid shall be disqualified on the basis of conflict of interest, no matter when the conflict is discovered by Galveston County.

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PREVAILING WAGES (2 CFR 200 APPENDIX II (D) and TGC 2258)

Pursuant to 2 CFR 200 Appendix II (D), Contractor must comply with Texas Government Code (TGC) 2258, Prevailing Wage Rates. Accordingly, Contractor must submit a certified payroll records as required, and compensate any worker employed on a public works project not less than as applicable. As noted under “Davis Bacon and Related Acts”, when required by Federal program legislation, construction contracts in excess of \$2,000 awarded by Galveston County shall require compliance with the Davis-Bacon Act (40 U.S.C. 3141-3144, and 3146-3148) as supplemented by Department of Labor regulations (29 CFR Part 5, “Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction”). In accordance with the statute, Contractor must pay wages to laborers and mechanics at a rate not less than the local prevailing wages, or Davis Bacon wages, as applicable. If both Texas prevailing wages and Davis Bacon provide rates for a particular class, Contractors must pay the greater wage rate. In addition, Contractor must pay wages not less than once a week.

In compliance with Section 2258 of the Texas Government Code, Contractor and any subcontractor hired by Contractor for the construction of any project, shall pay not less than the rates set forth in the Schedule of Prevailing Wages attached and incorporated by reference. In submitting a Bid, Contractor warrants that it and its subcontractors shall comply with all requirements and worker ratios per the applicable Schedule of Prevailing Wages and Texas state law.

Contractor must submit certified payroll of contractor and all subcontractors on a weekly basis. At County’s request, Contractor must make available and shall require its subcontractors to make available, copies of cancelled checks and check stubs for comparisons by the County or its agents. Regardless of whether Davis Bacon or Texas Prevailing Wages apply, the County reserves the right for its agents to visit the project site and to interview contractor, its subcontractors and employees of each on any date or time, as often as desired during the construction period, without prior notification.

Galveston County will ascertain if proper wage rates are being paid to the employees as required. In the event of a discrepancy between the work performed and the wages paid, the County shall document same and notify Contractor. If, for any length of time and as determined by Galveston County, discrepancies appear between the certified payrolls and the actual wage paid, the County shall require check stubs to be attached to each weekly certified payroll. Pursuant to Texas Government Code Section 2258.051, the County reserves the right to withhold any monies due Contractor until such discrepancy is resolved and the necessary adjustment made. The Contractor shall forfeit as a penalty, in accordance with Texas Government Code Section 2258.023(b), to the County or entity who administers the subject Project receiving Federal assistance, Sixty Dollars (\$60.00) for each worker, employed for each calendar day, or a portion thereof, such worker is paid less than the said stipulated rates for any work done under this Project, by him/her or by any contractor/subcontractor under him/her.

All contractor/subcontractor shall keep, or cause to be kept, an accurate record showing the names of all workers, also the actual per diem wages paid to each of such workers. Contractor shall impose these same obligations upon its Subcontractors. Contractor understands that with weekly or monthly certified payrolls, contractor is responsible for any and all penalties that shall accrue during the month, regardless of the fact that any error could not be discovered by the Contract Compliance Officer until the following certified payroll.

PROCUREMENT OF RECOVERED MATERIALS (2 CFR 200.322)

Pursuant to 2 CFR 200.322, Contractor must comply with Section 6002 of the Solid Waste Disposal Act, Pub. L. No. 89-272 (1965) (codified as amended by the Resource Conservation and Recovery Act at 42 U.S.C. § 6962). As such, any contractors awarded under this contract opportunity is subject to the requirements of Section 6002, which include procuring only items designated in guidelines of the EPA at 40 C.F.R. Part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition, where the purchase price of the item exceeds \$10,000 or the value of the quantity acquired by the preceding fiscal year exceeded \$10,000; procuring solid waste management services in a manner that maximizes energy and resource recovery; and

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establishing an affirmative procurement program for procurement of recovered materials identified in the EPA guidelines.

PROGRAM FRAUD AND FALSE OR FRAUDULENT STATEMENTS OR RELATED ACTS

Contractor must comply with 31 U.S.C. Chapter 38, Administrative Remedies for False Claims and Statements, which shall apply to the activities and actions of the Contractor and its subcontractors pertaining to any matter resulting from the contract.

RESTRICTIONS ON PUBLIC BUILDINGS AND PUBLIC WORKS PROJECTS CERTIFICATION

- b. Definitions. The definitions pertaining to this provision are those that are set forth on the clause entitled "Restrictions on Public Works Projects." (Set out under "Contract Clauses" below.)
- c. Certification. Except as provided in paragraph (C) of this provision, by submission of its bid or proposal, Proposer certifies that it:
 - i. Is not a Contractor of a foreign country included on the list of countries that discriminate against U.S. firms published by the Office of the United States Trade Representative (USTR) (see paragraph (H) of this provision);
 - ii. Has not or will not enter into any subcontract with a subcontractor of a foreign country included on the list of countries that discriminate against U.S. firms published by the USTR, and
 - iii. Will not provide any product of a country included on the list of foreign countries that discriminate against the U.S. firms published by the USTR.
- d. Inability to certify. A Proposer unable to certify in accordance with paragraph (b) of this provision shall submit with its offer a written explanation fully describing the reasons for its inability to make the certification.
- e. Applicability of 18 U.S.C. 1001. This certification is paragraph (B) of this provision concerns a matter within the jurisdiction of an agency of the United States, and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18 U.S.C. 1001.
- f. Notice. Proposer shall provide written notice to the Contracting Officer if, at any time before the contract award, Proposer learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
- g. Restrictions on contract award. Unless a waiver to these restrictions is granted by the Secretary of Housing and Urban Development, no contract will be awarded to a Proposer (1) who is owned or controlled by a citizen or national of a foreign country included on the list of foreign countries that discriminate against U.S. firms published by the USTR, (2) whose subcontractors are owned or controlled by citizens or national of a foreign country on the USTR list or, (3) who incorporates any product of a foreign country on the USTR list in the public works project.
- h. USTR List. The USTR published an initial list in the Federal Register on December 30, 1987 (53 FR 49244), which identified one country-Japan. The USTR can add countries to the list, and remove countries from it, in accordance with section 109 (C) of PUB. L. 100-202.
- i.

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RESTRICTIONS ON PUBLIC BUILDINGS AND PUBLIC WORKS PROJECTS

- a. Definitions. "Component", as used in this clause, means those articles, materials, and supplies incorporated directly into the product. "Contractor or subcontractor of a foreign country," as used in this clause, means any Contractor or subcontractor that is a citizen or national of a foreign country or is controlled directly or indirectly by citizens or nationals of a foreign country. A contractor or subcontractor shall be considered to be a citizen or national of a foreign country, or controlled directly or indirectly by citizens or nationals of a foreign country:
 - i. If 50 percent or more of the Contractor or subcontractor is owned by a citizen or a national of the foreign country;
 - ii. If the title to 50 percent or more of the stock of the Contractor or subcontractor is held subject to trust or fiduciary obligation in favor of citizens or nationals of the foreign country.
 - iii. If 50 percent or more of the voting power in the Contractor or subcontractor is vested in or exercisable on behalf of a citizen or national of the foreign country; iv. In the case of a partnership, if any general partner is a citizen of the foreign country;
 - v. In the case of a corporation. If its presidents or other chief executive officer or the chairman of its board of directors is a citizen of the foreign country or the majority of any number of its directors necessary to constitute a quorum are citizens of the foreign country or the corporation is organized under the laws of the foreign country or any subdivision, territory, or possession thereof; or
 - vi. In case of a contractor or subcontractor who is a joint venture, if any participant firm is a citizen or national of a foreign country or meets any of the criteria in subparagraphs (A) 1 through 5 of this clause. "Product", as used in this clause, means construction materials, i.e. articles, materials and supplies brought to the construction site for incorporation into the public works project, including permanently affixed equipment, instruments, utilities, electronic or other devices, but not including vehicles or construction equipment. In determining the origin of a product, Galveston County will consider a product as produce in a foreign country id it has been assembled or manufactured in the foreign country, or if the cost of the components mined, produced, or manufactured in the foreign country exceed 50 percent of the cost of all its components.
- b. Restrictions. The Contractor shall not (1) knowingly enter into any subcontract under this contract with a subcontractor of a foreign country included on the list of countries that discriminate against U.S. firms published by the United States Trade Representative (see paragraph (C) of this clause, or (2) supply any product under this contract of a country included on the list of foreign countries that discriminate against U.S. firms published by the USTR.
- c. USTR List. The USTR published an initial list in the Federal Register on December 30, 1987 (53 FR 49244), which identified one country-Japan. The USTR can add other countries to the list, or remove countries from it, in accordance with section 109 (C) of PUB. L. 100-102.
- d. Certification. The Contractor may rely upon the certification of a prospective subcontractor that it is not a subcontractor of a foreign country included on the list of countries that discriminate against U.S. firms published by the USTR and that products supplied by such subcontractor for use on the Federal public works

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project under this contract are not products of a foreign country included on the list of foreign countries that discriminate against U.S. firms published by the USTR, unless such Contractor has knowledge that the certification is erroneous.

e. Subcontractors. The Contractor shall incorporate this clause, modified only for the purpose of properly identifying the parties, in all subcontracts. This paragraph (E) shall also be incorporated in all subcontracts.

RIGHTS TO INVENTIONS (2 CFR Appendix II to Part 200 (F))

Any discovery or invention that arises during the course of the contract shall be reported to Galveston County. This clause requires the Contractor to disclose promptly inventions to the County (within 2 months) after the inventor discloses it in writing to Contractor personnel responsible for patent matters. The awarding agency shall determine how rights in the invention/discovery shall be allocated consistent with "Government Patent Policy" and Title 37 C.F.R. § 401.

If the Federal award meets the definition of "funding agreement" under 37 C.F.R. §.401.2(a) and the recipient or subrecipient wishes to enter into a contract with a small business firm or nonprofit organization regarding the substitution of parties, assignment or performance of experimental, developmental, or research work under that "funding agreement," the recipient or subrecipient must comply with the requirements of Title 37 C.F.R. § 401, "Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements," and any implementing regulations issued by the awarding agency.

SECTION 109 OF THE HOUSING AND COMMUNITY DEVELOPMENT ACT OF 1974 (24 CFR 570.602)

Section 109 of the Act requires that no person in the United States shall on the grounds of race, color, national origin, religion, or sex be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance made available pursuant to the Act. Section 109 also directs that the prohibitions against discrimination on the basis of age under the Age Discrimination Act and the prohibitions against discrimination on the basis of disability under Section 504 shall apply to programs or activities receiving Federal financial assistance under Title I programs. The policies and procedures necessary to ensure enforcement of section 109 are codified in 24 CFR part 6.

TERMINATION FOR CAUSE & CONVENIENCE (2 CFR Appendix II to Part 200 (A) and (B))

Pursuant to 2 CFR Appendix II to Part 200 (A), Contracts for more than the simplified acquisition threshold currently set at \$150,000, which is the inflation adjusted amount determined by the Civilian Agency Acquisition Council and the Defense Acquisition Regulations Council (Councils) as authorized by 41 U.S.C. 1908, shall address administrative, contractual, or legal remedies in instances where contractors violate or breach contract terms, and provide for such sanctions and penalties as appropriate.

Pursuant to 2 CFR Appendix II to Part 200 (B), all contracts in excess of \$10,000 shall address termination for cause and for convenience by the non-Federal entity including the manner by which it will be affected and the basis for settlement. Galveston County shall have the right to terminate this contract for cause and convenience.

In the event of a failure by Contractor to satisfactorily perform the services specified herein and/or a default by Contractor in abiding by the other terms and conditions of this Contract, Galveston County may terminate the Contract on written notice to Contractor and Contractor shall be liable for all damages, costs, and expenses (including attorney fees) incurred by County related to this default. Such termination is in addition to and not in lieu of any other remedies that Galveston County may have in law or equity. Administrative remedies for nonperformance, violation or breach of contract terms, or termination of contract for default may include suspension and debarment. Galveston

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County may assess liquidated damages for failure to meet completion deadlines, contract breaches, or performance failures of the Contractor or its Subcontractors.

Contractor shall be provided the opportunity to cure certain performance failures or instances of default as described in the contract documents. The legal dispute resolution process as applicable under the Texas Civil Practice and Remedies Code shall include, but is not limited to, Texas and Civil Practice and Remedies Section 38 – Attorney’s Fees, Texas Civil Practice and Remedies Section 41 – Damages, and Texas Civil Practice and Remedies Section 154 – General Provisions. Galveston County and Contractor(s) should attempt to resolve any claim for breach of contract made by Contractor, to the extent it is applicable to the Contract and not preempted by other law. Except as otherwise provided by law, nothing herein is a waiver by the County or the State of Texas of the right to seek redress in a court of law.

Termination provisions are included in the Contract Requirements & Payment, Section VIII, portion of this IFB.

WHISTLEBLOWER PROTECTION ACT

Contractor, subcontractors, and employees working on this Project shall be subject 41 U.S. Code § 4712, which requires that an employee of a contractor, subcontractor, grantee, or subgrantee or personal services contractor may not be discharged, demoted, or otherwise discriminated against as a reprisal for disclosing information that the employee reasonably believes is evidence of gross mismanagement of a Federal contract or grant, a gross waste of Federal funds, an abuse of authority relating to a Federal contract or grant, a substantial and specific danger to public health or safety, or a violation of law, rule, or regulation related to a Federal contract (including the competition for or negotiation of a contract) or grant.

The Contractor shall inform its employees and subcontractors in writing, in the predominant language of the workforce, of employee whistleblower rights and protections under 41 U.S.C. 4712, as described in section 3.908 of the Federal Acquisition Regulation. The Contractor shall insert the substance of this clause, including this paragraph, in all subcontracts providing services for this Project.

72. NON-EXCLUSIVE LIST OF APPLICABLE LAWS, RULES, AND REGULATIONS – TEXAS GENERAL LAND OFFICE (GLO)

If applicable to the Project, Provider must be in compliance with the following laws, rules, and regulations; and any other state, federal, or local laws, rules, and regulations as may become applicable throughout the term of the Contract, and Provider acknowledges that this list may not include all such applicable laws, rules, and regulations. Provider and is deemed to have read and understands the requirements of each of the following, if applicable to the Project under this Contract:

GENERALLY

The Acts and Regulations specified in this Contract;

Continuing Appropriations Act, 2018 and Supplemental Appropriations for Disaster Relief Requirements Act, 2017 (Public Law 115-56);

The Housing and Community Development Act of 1974 (12 U.S.C. § 5301 et seq.);

The United States Housing Act of 1937, as amended, 42 U.S.C. § 1437f(o)(13) (2016) and related provisions governing Public Housing Authority project-based assistance, and implementing regulations at 24 C.F.R. Part 983 (2016);

Cash Management Improvement Act regulations (31 C.F.R. Part 205);

Community Development Block Grants (24 C.F.R. Part 570);

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Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards (2 C.F.R. Part 200);

Disaster Recovery Implementation Manual; and State of Texas Plan for Disaster Recovery: Hurricane Harvey – Round 1, dated April 6, 2018, as amended.

CIVIL RIGHTS

Title VI of the Civil Rights Act of 1964, (42 U.S.C. § 2000d et seq.); 24 C.F.R. Part 1, "Nondiscrimination in Federally Assisted Programs of the Department of Housing and Urban Development - Effectuation of Title VI of the Civil Rights Act of 1964";

Title VII of the Civil Rights Act of 1964, as amended by the Equal Employment Opportunity Act of 1972 (42 U.S.C. § 2000e, et seq.);

Title VIII of the Civil Rights Act of 1968, "The Fair Housing Act of 1968" (42 U.S.C. §3601, et seq.), as amended;

Executive Order 11063, as amended by Executive Order 12259, and 24 C.F.R. Part 107, "Nondiscrimination and Equal Opportunity in Housing under Executive Order 11063"; The failure or refusal of Provider to comply with the requirements of Executive Order 11063 or 24 C.F.R. Part 107 shall be a proper basis for the imposition of sanctions specified in 24 C.F.R. 107.60;

The Age Discrimination Act of 1975 (42 U.S.C. § 6101, et seq.); and

Section 504 of the Rehabilitation Act of 1973 (29 U.S.C. § 794.) and "Nondiscrimination Based on Handicap in Federally-Assisted Programs and Activities of the Department of Housing and Urban Development", 24 C.F.R. Part 8. By signing this Contract, Provider understands and agrees that the activities funded shall be performed in accordance with 24 C.F.R. Part 8; and the Architectural Barriers Act of 1968 (42 U.S.C. § 4151, et seq.), including the use of a telecommunications device for deaf persons (TDDs) or equally effective communication system.

LABOR STANDARDS

The Davis-Bacon Act, as amended (originally, 40 U.S.C. §§ 276a-276a-5 and re-codified at 40 U.S.C. §§ 3141-3148); 29 C.F.R. Part 5;

The Copeland "Anti-Kickback" Act (originally, 18 U.S.C. § 874 and re-codified at 40 U.S.C. § 3145): 29 C.F.R. Part 3;

Sections 103 and 107 of the Contract Work Hours and Safety Standards Act (originally, 40 U.S.C. §§ 327A and 330 and re-codified at 40 U.S.C. §§ 3701-3708);

Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction (Also Labor Standards Provisions Applicable to Non-construction Contracts Subject to the Contract Work Hours and Safety Standards Act) (29 C.F.R. Part 5); and Federal Executive Order 11246, as amended.

EMPLOYMENT OPPORTUNITIES

Section 3 of the Housing and Urban Development Act of 1968 (12 U.S.C. § 1701u): 24 C.F.R. §§ 135.3(a)(2) and (a)(3);

The Vietnam Era Veterans' Readjustment Assistance Act of 1974 (38 U.S.C. § 4212);

Title IX of the Education Amendments of 1972 (20 U.S.C. §§ 1681-1688); and

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Federal Executive Order 11246, as amended.

GRANT AND AUDIT STANDARDS

Single Audit Act Amendments of 1996, 31 U.S.C. § 7501;

Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards (2 C.F.R. Part 200);

Uniform Grant and Contract Management Act (Texas Government Code Chapter 783) and the Uniform Grant Management Standards, issued by Governor's Office of Budget and Planning; and

Title 1 Texas Administrative Code § 5.167(c).

LEAD-BASED PAINT

Section 302 of the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. § 4831(b)).

HISTORIC PROPERTIES

The National Historic Preservation Act of 1966 as amended (16 U.S.C. § 470, et seq.), particularly sections 106 and 110 (16 U.S.C. §§ 470 and 470h-2), except as provided in §58.17 for Section 17 projects;

Executive Order 11593, Protection and Enhancement of the Cultural Environment, May 13, 1971 (36 FR 8921), 3 C.F.R., 1971-1975 Comp., p. 559, particularly section 2(c);

Federal historic preservation regulations as follows: 36 C.F.R. Part 800 with respect to HUD programs; and The Reservoir Salvage Act of 1960, as amended by the Archeological and Historic Preservation Act of 1974 (16 U.S.C. § 469, et seq.), particularly section 3 (16 U.S.C. §469a-1).

ENVIRONMENTAL LAW AND AUTHORITIES

Environmental Review Procedures for Recipients assuming HUD Environmental Responsibilities (24 C.F.R. Part 58, as amended);

National Environmental Policy Act of 1969, as amended (42 U.S.C. §§ 4321-4347); and Council for Environmental Quality Regulations for Implementing NEPA (40 C.F.R. Parts 1500-1508).

FLOODPLAIN MANAGEMENT AND WETLAND PROTECTION

Executive Order 11988, Floodplain Management, May 24, 1977 (42 FR 26951), 3 C.F.R., 1977 Comp., p. 117, as interpreted in HUD regulations at 24 C.F.R. Part 55, particularly Section 2(a) of the Order (For an explanation of the relationship between the decision-making process in 24 C.F.R. Part 55 and this part, see § 55.10.); and

Executive Order 11990, Protection of Wetlands, May 24, 1977 (42 FR 26961), 3 C.F.R., 1977 Comp., p. 121 particularly Sections 2 and 5.

COASTAL ZONE MANAGEMENT

The Coastal Zone Management Act of 1972 (16 U.S.C. § 1451, et seq.), as amended, particularly sections 307(c) and (d) (16 U.S.C. § 1456(c) and (d)).

SOLE SOURCE AQUIFERS

The Safe Drinking Water Act of 1974 (42 U.S.C. §§ 201, 300(f), et seq., and 21 U.S.C. §349) as amended; particularly section 1424(e)(42 U.S.C. § 300h-3(e)); and

Sole Source Aquifers (Environmental Protection Agency-40 C.F.R. part 149.).

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ENDANGERED SPECIES

The Endangered Species Act of 1973 (16 U.S.C. § 1531, et seq.) as amended, particularly section 7 (16 U.S.C. § 1536).

WILD AND SCENIC RIVERS

The Wild and Scenic Rivers Act of 1968 (16 U.S.C. § 1271, et seq.) as amended, particularly sections 7(b) and (c) (16 U.S.C. § 1278(b) and (c)).

AIR QUALITY

The Clean Air Act (42 U.S.C. § 7401, et seq.) as amended, particularly sections 176(c) and (d) (42 U.S.C. §7506(c) and (d)).

Determining Conformity of Federal Actions to State or Federal Implementation Plans (Environmental Protection Agency-40 C.F.R. Parts 6, 51, and 93).

FARMLAND PROTECTION

Farmland Protection Policy Act of 1981 (7 U.S.C. § 4201, et seq.) particularly sections 1540(b) and 1541 (7 U.S.C. §§ 4201(b) and 4202); and

Farmland Protection Policy (Department of Agriculture-7 C.F.R. part 658).

HUD ENVIRONMENTAL STANDARDS

Applicable criteria and standards specified in HUD environmental regulations (24 C.F.R. Part 51)(other than the runway clear zone and clear zone notification requirement in 24 C.F.R. § 51.303(a)(3); and

HUD Notice 79-33, Policy Guidance to Address the Problems Posed by Toxic Chemicals and Radioactive Materials, September 10, 1979.

ENVIRONMENTAL JUSTICE

Executive Order 12898 of February 11, 1994—Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, (59 FR 7629), 3 C.F.R., 1994 Comp. p. 859.

SUSPENSION AND DEBARMENT

Use of debarred, suspended, or ineligible contractors or subrecipients (24 C.F.R. §570.609);

General HUD Program Requirements; Waivers (24 C.F.R. Part 5); and

Nonprocurement Suspension and Debarment (2 C.F.R. Part 2424).

OTHER REQUIREMENTS

Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities (24 C.F.R. Part 58).

ACQUISITION / RELOCATION

The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (42 U.S.C. § 4601, et seq.), 24 C.F.R. Part 42, and 24 C.F.R. § 570.606.

FAITH-BASED ACTIVITIES

Executive Order 13279 of December 12, 2002 - Equal Protection of the Laws for Faith-Based and Community Organizations, (67 FR 77141).

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GALVESTON COUNTY, TEXAS**

73. SPECIAL CONDITIONS – TEXAS GENERAL LAND OFFICE (GLO)

If applicable to a Project or Activity, Subrecipient must be in compliance with the following Special Conditions and any other State, Federal, or local laws, rules, and regulations as may be applicable, throughout the term of the Contract, prior to the release of any grant funds for the Projects or Activities anticipated.

Subrecipient is deemed to have read and to understand the requirements of each of the following, if applicable to the Project or any Activity under this Contract:

A. REIMBURSEMENT, GENERALLY

As provided for in Public Law 115-56, the Contract funds may not be used for activities that are eligible to be reimbursed by, or for which funds are made available by, (a) the Federal Emergency Management Agency (FEMA); (b) the Army Corps of Engineers (Corps); (c) any other federal funding source; or (d) covered by insurance, and Subrecipient shall ensure compliance with all such requirements.

B. NATIONAL FLOOD INSURANCE PROGRAM COMPLIANCE

- (1) Subrecipient must provide documentation which indicates they have received approval from the Texas Water Development Board (TWDB), the National Flood Insurance Program (NFIP) State Coordinating Agency, that appropriate ordinances or orders necessary for Subrecipient to be eligible to participate in the NFIP have been adopted.
- (2) Where Activities specified in a Performance Statement, involve structures that are located in Special Flood Hazard Areas (SFHA), flood insurance may be required, and Subrecipient shall obtain such insurance, and shall maintain documentation evidencing compliance with such requirements.
- (3) Subrecipient acknowledges and agrees that if any property that is the subject of an Activity under this Contract located within a floodplain, that the following terms and conditions shall apply:
 - a. Under the Flood Disaster Protection Act of 1973, as amended (42 U.S.C. 4001-4128), Federal financial assistance for acquisition and construction purposes (including rehabilitation) may not be used in an area identified by the Federal Emergency Management Agency (FEMA) as having special flood hazards, unless:
 - i. The community in which the area is situated is participating in the National Flood Insurance Program ("NFIP") (44 CFR parts 59 through 79), or less than one (1) year has passed since the FEMA notification regarding such hazards; and
 - ii. The community is participating in the NFIP, or that flood insurance protection is to be obtained as a condition of the approval of financial assistance to the property owner.
 - b. Where the community is participating in the NFIP and the recipient provides financial assistance for acquisition or construction purposes (including rehabilitation) for property located in an area identified by FEMA as having special flood hazards, Subrecipient is responsible for ensuring that flood insurance under the NFIP is obtained and maintained.
 - c. Under Section 582 of the National Flood Insurance Reform Act of 1994, 42 U.S.C. 515a, HUD disaster assistance that is made available in a special flood hazard area may not be used to make a payment (including any loan assistance payment) to a person for repair, replacement, or restoration for flood damage to any personal, residential, or commercial property if:
 - i. The person had previously received Federal flood disaster assistance conditioned on obtaining and maintaining flood insurance; and
 - ii. The person failed to obtain and maintain flood insurance.
 - d. Subrecipient understands and agrees that it has a responsibility to inform homeowners receiving disaster assistance that triggers the flood insurance purchase requirement of their statutory

**REQUEST FOR PROPOSAL
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responsibility to notify any transferee of the requirement to obtain and maintain flood insurance, and that the transferring owner may be liable if he or she fails to do so.

C. PROJECT MAPPING/DESIGN INFORMATION

For construction projects, Subrecipient shall require and maintain copies, in written and/or digital format, of final Project record drawing(s) and engineering schematics, as constructed.

D. WATER SYSTEM IMPROVEMENTS

- (1) Prior to the GLO's release of funds for the construction of any water system improvements, Subrecipient shall provide certification to the GLO that plans, specifications, and related documents for the specified water system improvements have been prepared by the engineer selected for such activities, or the engineer's duly authorized representative, and that the review of such plans, specifications, and related documents meet the applicable Texas Commission on Environmental Quality (TCEQ) review requirements described in Title 30 of the Texas Administrative Code.
- (2) Prior to construction, Subrecipient shall provide documentation to the GLO that an approved new or amended Certificate of Convenience and Necessity (CCN), or the equivalent permit or authority for the area to be served, has been issued by the TCEQ.
- (3) Prior to Subrecipient submission of the Project Completion Report for any water system improvements described in Attachment A, Subrecipient shall provide a letter from the TCEQ that the constructed well is approved for interim use and may be temporarily placed into service pursuant to 30 Texas Administrative Code, Chapter 290—Rules and Regulations for Public Water Systems.

E. SEWER SYSTEM IMPROVEMENTS

Prior to the construction of any sewer system improvements described, Subrecipient shall provide certification that plans, specifications, and related documents for the specified sewer system improvements have been prepared by the engineer selected for such activities, or the engineer's duly authorized representative, and that the review of such plans, specifications, and related documents meet the Texas Commission on Environmental Quality (TCEQ) review requirements described in 30 Texas Administrative Code, Chapter 217, Subchapter D.

Further, prior to the construction of any sewer lines or additional service connections described in Attachment A, Subrecipient shall provide notification of the start of construction on any sewer treatment plant of other system-related improvements included in this Contract.

F. WASTEWATER TREATMENT CONSTRUCTION

Prior to incurring costs for any wastewater treatment construction in Attachment A, Subrecipient shall provide documentation of an approved permit or amendment(s) to an existing permit for such activities from the TCEQ's Water Quality Division.

In addition, Subrecipient shall provide documentation to the GLO that an approved new or amended Certificate of Convenience and Necessity (CCN), or equivalent permit or authority for the area to be served has been issued by the TCEQ.

G. SEPTIC SYSTEM IMPROVEMENTS

- (1) Subrecipient shall provide documentation that final plans, specifications, and installation of its septic system improvements have been reviewed and approved by the City or County Health Department through authority granted by the TCEQ.
- (2) Subrecipient shall mitigate all existing septic systems in accordance with 30 Texas Administrative Code Chapter 285, Subchapter D, §285.36(b), which states, "All tanks, boreholes, cesspools, seepage pits, holding tanks, and pump tanks shall have the wastewater removed by a waste transporter, holding a current registration with the executive director. All tanks, boreholes, cesspools, seepage pits, holding tanks, and pump tanks shall be filled to ground level with fill material (less than three inches in diameter), which is free of organic and construction debris."

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- (3) Prior to the selection of program recipients for proposed On-Site Sewer Facilities (OSSF), Subrecipient shall provide a copy of its proposed program guidelines to for GLO review. All proposed OSSF programs must meet or exceed guidelines set forth in 30 Texas Administrative Code Chapter 285 Subchapter D.

H. BUILDING CONSTRUCTION

Subrecipient shall provide documentation that the construction of a new building and facilities are in compliance with the Texas Accessibility Standards (TAS) of the Architectural Barriers Act, Chapter 469, Texas Government Code, and the Texas Department of Licensing and Regulation (TDLR) Architectural Barriers Administrative Rules, 16 Texas Administrative Code, Part 4, Chapter 68. If estimated construction costs exceed Fifty Thousand Dollars (\$50,000.00), Construction Documents must be submitted to the Texas Department of Licensing and Regulation (TDLR) for an accessibility plan review.

I. BRIDGE CONSTRUCTION/REHABILITATION

Subrecipient shall use the minimum design requirements of the Texas Department of Transportation (TxDOT) for bridge construction/rehabilitation. Final plans and specifications must be submitted to TxDOT for review and approval prior to the start of construction, and documentation of such approval must be provided to the GLO.

J. DISASTER SHELTERS

Subrecipient shall ensure that the primary purpose of the facility, as described in Attachment A, is to serve as a disaster shelter, and shall ensure the facility is operated at all times in a manner that ensures that the priority use is to serve as a disaster shelter regardless of any other scheduled uses or commitments that existed at the time of the disaster or emergency situation. In addition, Subrecipient shall prepare or be incorporated into an approved emergency management plan, as prescribed by the Texas Division of Emergency Management, identifying the shelter as a facility that provides short-term lodging for evacuees during and immediately after an emergency situation. Subrecipient shall submit a copy of Subrecipient's Emergency Management Plan Annex for Shelter and Mass Care to the GLO.

K. DEBRIS REMOVAL

Subrecipient shall ensure that any debris to be removed consists primarily of vegetation, construction and demolition materials from damaged or destroyed structures, and personal property. Only debris identified as the responsibility of the local jurisdiction will be eligible for the reimbursement of cost of removal.

Prior to beginning debris collection operations, Subrecipient shall address all pertinent environmental concerns, adhere to all applicable regulations, and obtain all required permits. Further, Subrecipient shall adhere to the methods described herein for the collection and storage of debris prior to proper disposal.

While construction and demolition debris may be collected and disposed of at an appropriately rated landfill, woody and/or vegetative debris must be stored prior to disposal by use of temporary debris storage and reduction sites (TDSR). Subrecipient will prepare and operate the TDSR sites, or local jurisdictions choosing to conduct their own debris operations may review Chapter 7 of the FEMA Debris Management Guide regarding the use of TDSR sites. This document may be obtained <https://www.fema.gov/pdf/government/grant/pa/demagde.pdf>.

In order to maintain the life expectancy of landfills, Subrecipients disposing of woody and/or vegetative debris must choose burning, chipping, or grinding as the method of disposal. Any project disposing of woody and/or vegetative debris must be approved in writing by the GLO.

L. USE OF BONDS

Subrecipient must notify the GLO of its issuance and sale of bonds for completion of the project funded under this Contract.

M. PROGRAM GUIDELINES

Prior to the selection of program beneficiaries, Subrecipient shall provide to the GLO, for GLO review and approval, a copy of its proposed guidelines for the program. The guidelines must meet or exceed to requirements in the Federal Registers. The guidelines must include provisions for compliance with the Federal

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Fire Prevention and Control Act of 1974 (which requires that any housing unit rehabilitated with grant funds be protected by a hard-wired or battery-operated smoke detector) and provisions for compliance with 24 CFR 35 (HUD lead-based paint regulation).

N. AFFORDABILITY PERIODS FOR SINGLE-FAMILY HOUSING REHABILITATION, RECONSTRUCTION, OR NEW CONSTRUCTION ASSISTANCE:

For single-family non-rental housing assistance provided by Subrecipient, Subrecipient shall implement the following affordability period: for rehabilitation or reconstruction of housing projects, a minimum¹ three-year affordability period guaranteed by an unsecured forgivable promissory note and for new construction housing projects, a minimum² five-year affordability period guaranteed by an unsecured forgivable promissory note.

O. UNSECURED FORGIVABLE PROMISSORY NOTE (“NOTE”)

An unsecured forgivable promissory note shall be issued at an interest rate of zero-percent (0%). Provided that all terms and conditions contained in the Note continue to be fulfilled, a Note will be forgiven according to the following terms, as applicable, until the applicant fulfills their note requirement (the requirements are defined in the promissory note document): for a three-year Note, at a rate of 33 percent per year, for the first two years, and 34 percent after the third year; and for a five-year Note, at a rate of 20% per year.

- (1) If the homeowner occupies the home for the full Note term, the Note expires and no repayment is required, nor will any conditions be imposed relative to the disposition of the property. If any of the terms and conditions under which the assistance was provided are breached or if the property is sold, leased, transferred, or vacated by the homeowner for any consecutive thirty (30) day period during the Note term, the repayment provisions of the promissory note and DOT shall be enforced.
- (2) If, during the Note term, the homeowner vacates the unit for any consecutive thirty (30) day period, the locality may forgive, as evidenced by the program director, city council, or commissioner court action, the remaining loan balance. Prior to forgiveness of all or any portion of the assistance provided, the request for forgiveness must be approved by the local governing body and be based on documented and justifiable conditions or circumstances that would result in an unnecessary hardship to the homeowner and the determination that the national objective of benefiting low to moderate-income persons was met.
- (3) The national objective will be considered met only when the program director, city council, or county commissioners court determines that a low- to moderate-income person has occupied the rehabilitated or reconstructed home for a time sufficient to meet the national objective. If the national objective was not achieved, Subrecipient is liable for repayment of an amount equal to the difference in the appraised value of the home prior to reconstruction and the sales price when the home is sold during the term of the forgivable Note.
- (4) If the property is sold or transferred to a person other than an eligible LMI person, the remaining prorated balance of the DPL must be repaid by the Subrecipient from the sales proceeds. Notwithstanding the preceding, Subrecipient shall be held liable for any balance remaining over and above the sales proceeds. In all instances, upon completion of the Note or repayment of the assistance (in full or in part), the Subrecipient shall prepare and record a release of lien document in the land records of the applicable county.
- (5) Monitoring of the Note is performed during and after the grant is closed. Subrecipient must utilize non-CDBG-DR funds to fulfill the monitoring obligations for its impacted recovered community.
- (6) The subrecipient will maintain a list of homeowners that do not maintain flood insurance as documented in their promissory note. These applicants will not be allowed to received future assistance as outlined in Section B of this document.

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P. RENTAL HOUSING REHABILITATION, RECONSTRUCTION, OR NEW CONSTRUCTION ASSISTANCE

The rental housing assistance will provided be provided in the following forms: for rehabilitation or reconstruction of multi-family rental projects with eight or more units, a minimum fifteen (15) year forgivable loan or grant at zero interest; and for new construction multi-family rental projects with five or more units, a minimum twenty (20) year forgivable loan or grant at zero interest. Provided all terms and conditions under which the assistance was provided continue to be fulfilled, the note will be forgiven at a rate of 5 percent per year until the applicant fulfills their note requirement (the requirements are defined in the promissory note document).

The purpose of the program is to facilitate the rehabilitation, reconstruction, and/or new construction of affordable rental housing needs within the service area of the disaster event. A minimum of 51% of the multi-family units must be restricted during the affordability period of twenty (20) years for low to moderate income (LMI) persons. The rents, at a minimum, must comply with High HOME Investment Partnership (HOME) Rents and other existing Land Use Restriction Agreement (LURA) restrictions if applicable. HOME rent limits are defined by HUD and must equal the lesser of fair market rents or 30% of the adjusted income for people earning 65% of the AMFI.

Q. COASTAL MANAGEMENT

Subrecipient acknowledges and agrees that any Project that may impact a Coastal Natural Resource Area must be consistent with the goals and policies of the Texas Coastal Management Program as described in 31 Texas Administrative Code, Part 16, Chapter 501.

74. ENERGY EFFICIENCY (42 U.S.C. 6201 and 2 CFR 200 APPENDIX II (H))

Contractor must comply with the mandatory standards and policies relating to energy efficiency, which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (42 U.S.C. 6201). Contractor must include this provision in all contracts between itself and any subcontractors in connection with the services performed under this Contract.

75. LEAD AND ASBESTOS

If this request for Proposal involves remediation, demolition, reconstruction, rehabilitation, repair, or construction, or other applicable activities, the Contractor shall be responsible for performing investigations of lead and asbestos containing materials, and any required lead and asbestos abatement in compliance with Federal, State, and local laws, rules, regulations, ordinances and orders, relating to lead abatement and asbestos abatement as applicable, including but not limited to the Texas Asbestos Health Protection Act, codified as Chapter 1954 of the Occupations Code; the Texas Asbestos Health Protection Regulations, located at Title 25, Part 1, Chapter 295, Subchapter C of the Texas Administrative Code; Chapter 1955 of the Texas Occupations Code (lead-based paint abatement); the Texas Environmental Lead Reduction regulations, located at Title 25, Part 1, Chapter 295, Subchapter I of the Texas Administrative Code; the federal National Emission Standards for Asbestos regulations, located at Title 40, Part 61, Subpart M of the Code of Federal Regulations, and the National Emission Standards for Hazardous Air Pollutants. Contractor shall perform such inspections, encapsulation, remediation, or other actions as required by federal, State, or local requirements in accordance with the federal Environmental Protection Agency (EPA), Texas Department of State Health Services (TXDSHS), and Texas Commission on Environmental Quality (TCEQ) requirements.

76. USE OF DHS SEAL, LOGO, AND FLAGS PROHIBITED WITHOUT PRIOR APROVAL

Contractor must obtain permission from the U.S. Department of Homeland Security financial assistance office (DHS FAO) **prior** to using DHS seals(s), logos, crests, or reproductions of flags or likenesses of DHS agency officials, including use of the United States Coast Guard seal, logo, crests or reproductions of flags or likenesses of Coast Guard Officials.

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77. FEDERAL GOVERNMENT NOT A PARTY

Contractor acknowledges that the Federal Government is not a party to the contract and is not subject to any obligations or liabilities to Galveston County, contractor, or any other party pertaining to any matter resulting from the contract.

78. PROGRAM FRAUD AND FALSE OR FRAUDULENT STATEMENTS OR RELATED ACTS

In contracts funded through Federal grants, Contractor acknowledges that 31 U.S.C. Chapter 38, Administrative Remedies for False Claims and Statements (31 U.S.C. § 3801, et seq.) and the implementing regulations thereunder, 49 C.F.R. Part 79, apply to Contractors actions pertaining to the contract.

79. ACKNOWLEDGMENT OF GOVERNMENT RECORD

Proposer acknowledges that its submission in this Request for Proposals, including its Proposal, certifications, affidavits, Vendor Forms (i.e., PEID, W-9, CIQ, etc.) constitutes government records under Chapter 37 of the Texas Penal Code.

80. COMPLIANCE WITH GALVESTON COUNTY PURCHASING POLICIES AND PROCEDURES

Proposer acknowledges, by its submission in this request for Proposals, that it shall comply with the Galveston County Purchasing Policies & Procedures Manual approved by Order of the Galveston County Commissioners' Court on March 7, 2018.

81. ENTIRETY OF AGREEMENT AND MODIFICATION

This contract contains the entire agreement between the parties. Any prior agreement, promise, negotiation, or representation not expressly set forth in this contract has no force or effect. Any subsequent modification to this contract must be in writing, signed by both parties.

An official representative, employee, or agent of the County does not have the authority to modify or amend this contract except pursuant to specific authority to do so granted by the Galveston County Commissioners' Court.

82. NOTICE

All notices or other communications required or permitted under this contract shall be in writing and shall be deemed to have been duly given if delivered personally in hand, transmitted by facsimile, or mailed certified mail, return receipt requested with proper postage affixed and addressed to the appropriate party at the following address or at such other address as may have been previously given in writing to the parties (Proposer shall provide its notice information with its Proposal submission). If mailed, the notice shall be deemed delivered when actually received, or if earlier, on the third day following deposit in a United States Postal Service post office or receptacle, duly certified, return receipt requested, with proper postage affixed. If delivered in person, notice shall be deemed delivered when receipted for by, or actually received by the receiving Party. If transmitted by facsimile, notice shall be deemed delivered when receipt of such transmission is acknowledged.

To the County at:

Hon. Mark Henry,
County Judge of Galveston County
722 Moody (21st Street), Second (2nd) Floor
Galveston, Texas 77550
Fax: (409) 765-2653

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With copies to:

Rufus Crowder, CPPO CPPB,
Galveston County Purchasing Agent
722 Moody (21st Street), Fifth (5th) Floor
Galveston, Texas 77550
Fax: (409) 621-7997

To the Contractor at:

End of General Provisions

SPECIAL PROVISIONS

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SPECIAL PROVISIONS

REQUEST FOR PROPOSAL COUNTY BUILDING AUTOMATION SYSTEMS GALVESTON COUNTY, TEXAS

The General Provisions and the Special Provisions of this Request for Proposal and the Exhibits attached hereto are made a part of this agreement between the Parties. In the event of a conflict between the General Provisions and the Special Provisions, the terms of the Special Provisions shall control.

A. PURPOSE

Galveston County is seeking a company to replace aging Building Automation Systems in various county buildings that are in legacy status and are no longer supported. The county buildings included, but not limited to, are listed below:

- Emergency Management Building – 1353 FM 646, Dickinson, TX 77539
- Wayne Johnson Community Center -4102A FM 517, La Marque, TX 77568
- Agrilife-Texas Coop Extension – 4102B FM 517, La Marque, TX 77568
- West County Annex – 11730 Hwy 6, Santa Fe, TX 77510
- Mid County Annex, 9850 Emmet F. Lowry Expressway, Texas City, TX 77590
- Sam Popovich Annex – 1922 Sealy, Galveston, TX 77550
- JP#3 Crystal Beach Courthouse/Eddie Barr Annex – 946 Noble Carl Drive, Crystal Beach, TX 77650
- Joe Faggard Community Center – 1750 Hwy 87, Crystal Beach, TX 77650

The Commissioners' Court at its discretion, may add more facilities at any time during the resultant contract period and all of its extensions.

B. EXCEPTIONS

Any exceptions to these solicitation conditions should be listed on a separate sheet of paper, attached to respondent's submittal, and submitted with a response at the specified date and time of the solicitation opening.

C. PROCUREMENT TIMELINE

A timeline for this solicitation and initial process is included below. Galveston County reserves the right to change these dates and will notify Respondents of any changes:

| | |
|---|--|
| Advertise Solicitation (first date of publication) | Tuesday, February 14, 2023 |
| Advertise Solicitation (second date of publication) | Tuesday, February 21, 2023, 2023 |
| Mandatory Pre-Qualification Conference | Wednesday, March 1, 2023 @ 10:00 a.m. |
| Deadline for Questions & Inquiries | Wednesday, March 6, 2023 by 5:00 p.m. |
| Submission Deadline / RFP Opening | Thursday, March 23, 2023, at 2:15 p.m. |

Interested parties may attend the 2:15 p.m., Thursday, March 23, 2023 bid opening virtually by using the following link:

<https://galvestoncountytexas.webex.com/galvestoncountytexas/j.php?MTID=m38ded39a7b8a5d94e6f20fe80d806d30>

Join by meeting number

Meeting number (access code): 2482 884 1668

Meeting password: B231015 (2231015 from video systems)

Tap to join from a mobile device (attendees only)

+1-415-655-0001,,24828841668## US Toll

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Join by phone

+1-415-655-0001 US Toll
Global call-in numbers

Join from a video system or application

Dial 24828841668@galvestoncountytexas.webex.com

You can also dial 173.243.2.68 and enter your meeting number.

D. SUBMISSION INSTRUCTIONS:

One (1) single-sided unbound original proposal statement, and four (4) single-sided proposal statement copies, must be submitted no later than **2:15 P.M. CST, on Thursday, March 23, 2023, to the following:**

**Rufus G. Crowder, CPPO CPPB
Purchasing Agent
County of Galveston
722 Moody Avenue (21st Street), Fifth (5th) Floor
Galveston, TX 77550**

The time stamp clock located in the Purchasing Agent's office shall serve as the official time-keeping piece for this solicitation process. Any qualification statements received after **2:15 P.M. CST** on the specified date will be returned unopened. Proposal statement specifications can be obtained at the office of the Galveston County Purchasing Agent, located in the Galveston County Courthouse, 722 Moody, (21st Street), Floor 5, Purchasing, Galveston, Texas 77550, or by visiting the Galveston County website @ <http://www.galvestoncountytexas.gov/county-offices/purchasing>

E. PRE-PROPOSAL CONFERENCE:

A mandatory pre-proposal conference has been scheduled for **Wednesday, March 1, 2023, at 10:00 a.m. at the County Courthouse, Purchasing Department, 722 Moody, (21st Street), 5th Floor, Galveston, TX 77550**

Or

Interested parties can attend the mandatory pre-proposal conference virtually by using the following link:

Virtual Pre-Proposal Conference:

<https://galvestoncountytexas.webex.com/galvestoncountytexas/j.php?MTID=m7716bdf0abd07fa4a5c2e3a52cb424>

Join by meeting number

Meeting number (access code): 2483 578 3375
Meeting password: B231015 (2231015 from video systems)

Tap to join from a mobile device (attendees only)

+1-415-655-0001,,24835783375## US Toll

Join by phone

+1-415-655-0001 US Toll
Global call-in numbers

SPECIAL PROVISIONS

REQUEST FOR PROPOSAL COUNTY BUILDING AUTOMATION SYSTEMS GALVESTON COUNTY, TEXAS

Join from a video system or application

Dial 24835783375@galvestoncountytexas.webex.com

You can also dial 173.243.2.68 and enter your meeting number.

F. PROPOSAL SURETY

A surety/bond is not a requirement of this solicitation.

G. PERFORMANCE AND PAYMENT BONDS

Performance and Payment Bonds are not requirements of this solicitation.

H. DAVIS-BACON WAGE RATES

Davis-Bacon Wage Rates are not a requirement of this solicitation.

I. PERSONNEL TO CONTACT

Qualifiers desiring an explanation or interpretation relative to this solicitation must request it in writing. Oral explanations or instructions will not be binding. Any information given to a Proposer, which in the opinion of the County affects all responders or would be prejudicial to other proposers if not communicated, shall be furnished to all proposers as an addendum to the solicitation. Proposers **must** direct all inquiries to the following:

Rufus G. Crowder, CPPO CPPB
Purchasing Agent
722 21st Street (Moody), 5th Floor
Galveston, Texas 77550
E-mail: purchasing.bids@co.galveston.tx.us

Respondents must e-mail their requests (with the subject line “County Building Automation Systems – RFP #B231015 – Questions”) for additional information and/or clarification to the address listed above. The request must include the Responder’s name and the solicitation number and title.

*Any request for additional information or clarification must be received in writing **no later than ten (10) calendar days prior to the solicitation due date.*** Late requests or those not delivered to the proper address may not receive a reply. Respondents shall not attempt to contact the County by any other means. The Purchasing Agent shall post the answers on the County website from the procurement web page and via addendum.

The County will issue responses to inquiries and any other corrections or amendments, it deems necessary, in the form of a written addendum, issued prior to the solicitation Submission Deadline / Solicitation Opening date. The County, at its sole discretion, may not issue a response to an RFI submittal. Respondents should not rely on any oral or written representations, statements, or explanations, other than those made in this solicitation or in any written addendum to this solicitation. Where there appears to be conflict between the solicitation and any issued addenda, the last addendum issued will prevail.

Addenda will be posted and made available on the County’s procurement web page. **It is the Responder’s sole responsibility to ensure receipt of all addenda prior to submitting its response.** All Respondents should check the County’s procurement web page for all addenda prior to submitting a response.

The County’s procurement web page is located at <http://www.galvestoncountytexas.gov/countv-offices/purchasing>.

SPECIAL PROVISIONS

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The Respondent must acknowledge the receipt of all addenda on the forms provided. In the event a Responder fails to acknowledge receipt of such addenda, the County may, at its sole discretion, determine that such failure to acknowledge any or all addenda does not materially affect the solicitation and waive the acknowledgement of one or more addenda.

Respondents who submit inquiries *after* the deadline date for receipt of questions indicated on the Procurement Timeline, risk that its response in the procurement will not be responsive or competitive because the County is not able to respond before the solicitation receipt date or in sufficient time for the Responder to prepare a responsive or competitive submittal.

All questions and responses as posted on the County website pertaining to this solicitation are considered an addendum to, and part of, this solicitation. Each Responder shall be responsible to monitor the County website for new or revised solicitation information. The County shall not be bound by any verbal information, nor shall it be bound by any written information that is not either contained within the solicitation or formally issued as an addendum by the Purchasing Agent.

J. PROGRAM ADMINISTRATION & CONTRACT MANAGEMENT

The Program Administrator/Contract Manager that will manage the work to be performed under the resultant contract for the purpose of this solicitation is:

William Riordan
Facilities Director
722 Moody, (21st St.), 6th Floor
Galveston, TX 77550

The Galveston County Commissioners' Court, and/or authorized designees will be responsible for negotiating with the successful Vendor the scope of work, the standards of performance, the specific technology provided, and the support services required for the proposed projects. All contractual amendments will be processed in accordance with Galveston County Purchasing Policies. Amendments will also be brought to Galveston County Commissioners Court for approval as deemed necessary. The approval process serves to ensure the project technology and/or service is within the scope of the resultant contract that pricing meets the agreed-upon pricing methodology as specified in the contract, and that funds are available.

K. REQUIREMENTS OF REQUEST FOR PROPOSAL

Respondent shall provide one (1) original and four (4) hard copies and one (1) electronic copy on a thumb drive of its response to the Purchasing Agent on or before the submission deadline specified herein. Font size is limited to no smaller than font size 11, except that organizational charts, other graphics, and footers may be as small as font size 9.

L. INSURANCE

Responder must submit, with its response, a current certificate of insurance evidencing coverage in the amounts specified below or greater. In lieu of submitting a certificate of insurance, Respondents may submit a notarized statement from an insurance company authorized to conduct business in the State of Texas guaranteeing that Respondent has such insurance. Provided, however, that successful Respondent(s) shall be required to provide a current certificate of insurance to the Galveston County Purchasing Agent's Office before Respondent commences any work hereunder. **Insurance shall be placed with insurers having an A.M. Best's rating of no less than A.** Such insurance must be issued by a casualty company authorized to do business in the State of Texas and in standard form approved by the Board of Insurance Commissioners of the State of Texas, with coverage provisions ensuring the public from loss or damage that may arise to any person or property by reason of services rendered by Contractor.

SPECIAL PROVISIONS

REQUEST FOR PROPOSAL COUNTY BUILDING AUTOMATION SYSTEMS GALVESTON COUNTY, TEXAS

Galveston County shall be listed as an additional insured on each policy and all certificates of insurance and Contractor shall provide Galveston County with no less than thirty (30) calendar days prior notice of any changes to the policy during the contractual period.

Certificates of Insurance, fully executed by a licensed representative of the insurance company written or countersigned by an authorized Texas state agency, shall be filed with the County Purchasing Agent within ten (10) calendar days of the execution of this Agreement as written proof of such insurance and further provided that Contractor shall not commence work under this Agreement until Contractor has obtained all insurance required herein, provided written proof as required herein, and received written notice to proceed issued from the County Purchasing Agent. **Failure to provide such evidence of insurance within the ten (10) calendar day period shall constitute an event of default.**

Workers' Compensation Insurance. Respondent shall carry in full force Workers' Compensation Insurance Policy(ies), if there is more than one employee, for all its employees, including but not limited to full-time, part-time, and emergency employees employed by the Contractor.

Commercial General Liability. Respondent shall carry in full force commercial general liability insurance with a limit of not less than \$1,000,000 each occurrence and \$2,000,000 in the aggregate. The Policy shall, minimally, cover liability for bodily injury, personal injury, and property damage.

Business Automobile Liability. Respondent shall carry in full force business automobile liability coverage with a combined bodily injury/property damage limit of not less than \$1,000,000 each accident. The policy shall cover liability arising from the operation of licensed vehicles by policyholder.

Subrogation Waiver. Contractor and Contractor's insurance carrier shall waive any and all rights to subrogation against Galveston County regarding any suit or claim arising out of personal injury or property damage resulting from Contractor's performance under this Agreement.

M. SCOPE OF WORK

Please see **Attachment A** for detailed Scope of Work instructions.

N. COST

Any unit prices submitted by the proposer shall include all costs to the County, including the material, delivery, current freight rate, state tax, or any other cost.

O. INVOICES:

Invoices must be itemized indicating all materials and supplies used. Invoices must be submitted to:

**Galveston County Auditor's Office
Attn: Accounts Payable
P.O. Box 1418
Galveston, Texas 77553**

Failure to submit invoices to the above address or failure to include the Purchase Order Number will result in delay in payment.

Contractor must accept purchase order numbers for specified supplies, equipment, and/or services. Contractor shall not perform any work or release any supplies and/or equipment to any authorized representative of the County of Galveston unless a valid purchase order number issued by the office of the Galveston County

SPECIAL PROVISIONS

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COUNTY BUILDING AUTOMATION SYSTEMS
GALVESTON COUNTY, TEXAS**

Purchasing Agent accompanies the order or if vendor can comply with the provision as stated in the General Provisions, page 3, item 11, Procurement Card Program.

Payment for any items issued without prior receipt of a valid purchase order number may become the sole responsibility of the successful contractor.

P. EVALUATION AND SELECTION PROCESS

An evaluation committee shall review and evaluate the responses timely submitted to the County Purchasing Agent resulting from this solicitation effort. Responses shall be reviewed by the evaluation committee and shall be evaluated in accordance with the evaluation criteria listed herein. The evaluation committee will determine which responses are qualified based on the criteria listed below. The evaluation committee shall evaluate and score each response. The points from each scoring category will be comprised from the following:

The selection process will be based on the responses to this Request for Proposal and any interviews required to verify the ability of the proposer to provide services:

- **Firm Experience & Qualifications, Capacity and Resources.....30%**

Firm provides qualifications, competence, and experience of staff to be assigned to project. Firm demonstrates:

1. Understanding of scope of the Project.
2. Ability to meet the qualifications and compliance requirements listed herein, including that firm meets the appropriate state licensing requirements in Texas.
3. Specialized experience or technical expertise in connection with the scope of services to be provided and complexity of the project, which includes a thorough description of other successful projects, that demonstrate the firm's ability to carry out the scope of work similar to the one described in this RFP.
4. Knowledge of local and national building codes
5. Capability to provide services, meeting the quality requirements, in a timely manner.
6. Sufficient staffing size and capacity of the organization to perform the work within time limitations, taking into consideration the current and projected planned workload of the firm.
7. Ability to perform requested services for similar projects of scope and scale by providing five (5) recent examples of projects completed on budget and on time.
8. Sufficient financial capacity and acceptable business practices.

- **Past Performance.....30%**

Firm demonstrates past performance in terms of cost control, quality of work, and compliance with performance schedules. Firm demonstrates record of:

1. Conforming to contract requirements and to standards of good workmanship.
2. Forecasting and controlling costs.
3. Adhering to schedules, including the administrative aspects of performance.
4. Providing reasonable and cooperative behavior and commitment to customer satisfaction.
5. Reporting into database (if applicable);
6. Integrity and business ethics; and
7. Business-like concern for the interest of the customer

SPECIAL PROVISIONS

**REQUEST FOR PROPOSAL
COUNTY BUILDING AUTOMATION SYSTEMS
GALVESTON COUNTY, TEXAS**

- **Organization & Project Methodology.....15%**

Firm demonstrates:

1. How the services will be provided and how they will be supported for completing the described work in this RFP.
2. A comprehensive plan for completing a project using a representative project, describe in detail the process, procedures, and methodology for completing the project from planning through construction.

- **COST.....15%**

1. Rank order Cost, adjusted for Duration deltas.

- **HUB/MWBW and Section 3 Utilization Commitment.....10%**

Firm demonstrates commitment or ability to integrate HUB / MWBE and Section 3 participation into the plan for accomplishing the work described in this RFP.

Offerors which demonstrate a greater commitment to making a good faith effort in utilizing HUB / MWBE and Section 3 participation for this contract opportunity will receive higher scores.

By the submission of its response to this solicitation effort (also called response) in this Request for Proposal, the Respondent accepts the requirements, formatting, and evaluation process herein.

End of Special Provisions Section

ATTACHMENT A

SECTION 23 09 24 – DIRECT DIGITAL CONTROL SYSTEM FOR LARGER FACILITIES

PART 1. GENERAL

1.1 SUMMARY/SCOPE

- A. Section Includes: Direct digital control (DDC) system for HVAC.

The scope of this specification will apply to buildings served by central plants that need advanced control capabilities for integration of mechanical systems such as cooling towers, chillers, boilers, air handlers, HVAC pumps, terminal boxes and control valves for terminal boxes. Examples of such buildings would be the Mid County Annex Building. This report does not address control systems for smaller buildings conditioned by unitary DX systems.

1.2 OWNER CRITERIA

- A. The owner will evaluate each bidder on the following criteria:

1. Ability to control the system from a central location on or offsite.
2. Ability to control the system from a smart phone or tablet
3. Ability to have minimal end-user interaction (The owner prefers service calls over end-user adjustment)
4. Secure log in or encrypted connection
5. Ability to control central plant and HVAC equipment such as cooling towers, chillers, boilers, pumps, air handling units, terminal boxes, control valves, outside air dampers (modulating), generator (status)
6. Ability to change system settings in-house without the assistance of a hired technician.
7. Compatibility with existing equipment and future system flexibility (open protocol). This specification uses LonWorks as the basis of design. BACNet is also an acceptable communication protocol.
8. Ability to integrate controls with the National Weather service to react to weather emergencies.

1.3. Section Includes

- A. Furnish all labor, materials, equipment, and service necessary for a complete and operating Facility Management and Controls System (FMCS), utilizing Direct Digital Controls as shown on the drawings and as described herein. Drawings are diagrammatic only. The FMCS 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 HVAC controls, energy management, alarm monitoring and all trending, and

reporting 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 or on the plans that are required to meet the functional intent of this specification shall be provided without additional cost to the Owner.
- C. The Owner will provide reserved DHCP addresses and any other network configuration information necessary to each control contractor for the purpose of configuring each JACE on the network. The controls contractor shall coordinate the IP addressed for each JACE. It shall be the responsibility of each control contractor to coordinate with the Owner for network connectivity.
- D. The controls contractors shall supply, install, configure and program at least one JACE for each school. An existing JACE may be used to expand an existing system, however all existing programs, points, graphics, etc. must remain in tact. It shall be the control contractor's responsibility to determine how many JACE controllers will be required at each of the schools to limit congestion and to maintain system reliability and stability. The JACE or JACEs will be the primary operator interface for the school. All JACEs must be supplied with open licenses and be configured to work with any other JACE or AX Supervisor. Configure each JACE with all User Interface, Connectivity, and Embedded Workbench tools and licenses to allow for standalone operation as well as future integration into the supervisory system. All JACEs shall also be supplied with battery backup with provisions for automatic restart and database backup in case of power failure.

Additionally, all drivers necessary and required to function with the installed control components within the scope of work for each school shall be the responsibility of the control contractor. In any case, the Owner shall maintain the right to direct contractor to modify any software license, regardless of supplier, as desired by Owner.

- E. Each building will have a network connection provided by the Owner. It shall be the responsibility of the control contractor to coordinate with the Owner for network connection location and requirements.

1.4. System Description

- A. The entire Facility Management and Control System (FMCS) shall be comprised of a network of interoperable, standalone digital controllers communicating on an open protocol communication network via the internet to any terminal computer with access to the network.
- B. The intent of this specification is to provide a peer-to-peer networked standalone, distributed control system with the capability to integrate the LonWorks technology communication protocol and to present this information using a Web Browser based Graphical User Interface.
- C. 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. Systems requiring proprietary database and user interface programs shall not be acceptable.
- D. A hierarchical topology is required to assure reasonable system response items and to manage the flow and sharing of data without unduly burdening the customer's internal network. Systems employing a "flat" single tiered architecture shall not be acceptable.

1.5. Supervisor Structure

- A. The Controls Contractor will use the existing Web Supervisor and maintain all new JACE controllers at the same version as the Supervisor. The Supervisor shall be utilized for aggregation of the campuses within this contract and in the future for further campuses.
- B. The County-wide Supervisor shall be responsible for the following services:
 - I. County-wide Login information such as Users, Navigation
 - II. Graphics Files necessary for central login and navigation
 - III. Graphics files necessary for aggregation of information from the County-wide system.
 - IV. Critical alarm console for display of critical alarms from County-wide system.
 - V. Uploaded histories, data storage and retrieval
 - VI. Automatic back-up of each Site Supervisor or JACE.
- C. For campuses where multiple JACE controllers are needed, either a Site Supervisor or a Master JACE shall be provided at each campus.
- D. The Site Supervisor, or Master JACE, shall be responsible for the following services:
 - I. Site Login information such as Users, Navigation
 - II. Campus-specific graphics files and user interface graphics.
 - III. Local alarm console for display of campus specific alarms.
 - IV. Uploaded histories, data storage and retrieval of campus specific trends.
 - V. Email service for alarm notification of critical alarms.
 - VI. Automatic back-up of each JACE at the campus
 - VII. Scheduling of equipment at the campus.
- E. For campuses where multiple JACE controllers are needed, the JACEs shall be responsible for the following services:
 - I. Generation of alarms
 - II. Generation of data history on monitored points.
 - III. All DDC logic. Field controllers would still contain their associated logic.
- F. For campuses where a single JACE controller is needed, the JACE shall be responsible for the following services:
 - I. Site Login information such as Users, Navigation
 - II. Campus-specific graphics files and user interface graphics.
 - III. Local alarm console for display of campus specific alarms.
 - IV. Uploaded histories, data storage and retrieval of campus specific trends.
 - V. Email service for alarm notification of critical alarms.
 - VI. Scheduling of equipment at the campus.

1.6. Abbreviations and Definitions

A. Abbreviations

| | |
|-------------|--|
| Adj | Adjustable – All set points are assumed to be adjustable whether specified or not. The set points specified are values that should be programmed initially but can be changed if necessary. |
| AHU | Air Handler |
| ASC | Application Specific Controller |
| CFM | Cubic Feet per Minute |
| CHW | Chilled Water |
| CO2 | Carbon Dioxide |
| DDC | Direct Digital Control |
| EMCS | Energy Management Control System. The EMCS controls all of the HVAC functions as well as lighting schedules and lawn sprinkler schedules |
| FCU | Fan Coil Unit |
| FMCS | Facility Management Control System |
| GPM | Gallons Per Minute |
| HMI | Human Machine Interface |
| HW | Hot Water |
| NLC | Network Level Controller |
| OAU | Outside Air Unit |
| ppm | Parts Per Million – A measurement of the concentration of one substance within another. In this case, it is the number of CO2 particles in a sample of one million air particles. |
| RWS | Remote Work Station |
| TCS | Temperature Control Sensor. This is the device that controls the temperature in the space. |
| VFD | Variable Frequency Drive |
| VAV | Variable Air Volume |

B. Definitions

Building Management and Control System, Facility Management Control System, Energy Management and Control System, and Control System are to be considered the same.

Component: Any individual element of the FMCS furnished under this contract including hardware, software and materials.

Contractor: The FMCS Contractor who shall provide the Facility Management and Control System and shall be responsible for the FMCS system.

Direct Digital Control (DDC) involves the connection of microprocessor-based controllers to field level sensors and actuators. The signals received from field level instrumentation are converted from analogue to digital format so that the data can be used in software logic. Control signals are determined by software logic and they are converted from digital to analogue format so that the final control elements, e.g. relays, actuators, etc., can be adjusted.

Distributed Control: A system whereby all control processing is decentralized and independent of a central computer.

Owner: Galveston County or their appointed representative.

Furnish: Purchase and deliver to the appropriate installing Contractor, complete with every appurtenance, document, commission and warranty.

Domain: A grouping of up to 32,385 nodes that can be communicate directly with each other.

Human-Machine Interface (HMI): Human-machine interfacing allows the operator to manage, command, monitor, and program the system.

Integration: Establishing communication between two devices through the use of a gateway.

Interoperability: The ability of systems from different manufacturers and of different types to share information with each other without losing any of their independent functional capabilities and without the need for complex programming.

LonMark Interoperability Association: Standards committee consisting of numerous independent product developers and systems integrators dedicated to determining and maintaining the interoperability guidelines for the LonWorks® industry.

LonMarked®: Device has been certified for compliance with LonMark standards by the LonMark association.

LonTalk®: Standard communication protocol developed by the Echelon Corporation.

LonWorks: The overall communications technology for control systems developed by Echelon Corporation. The technology employs routers, gateways, bridges, and multimedia transceivers to permit topology and media-independent control solutions. Refer to standard ANSI/EIA - 709.1

Network: A system of distributed control units that are linked together on a communication bus. A network allows sharing of point information between all control units. Additionally, a network provides central monitoring and control of the entire system from any distributed control unit location.

Network Configuration Tool: The software used to configure the control network and set device configuration properties.

Operating System (OS): Software which controls the execution of computer programs and which provides scheduling, debugging, input/output controls, accounting, compilation, storage assignment, data management, and related services.

Peer-to-Peer Communication: Communication directly between devices that operate on the same communications level of a network, without intervention from any intermediary devices such as a host or server PC.

Programmable Device: A device that does not have a pre-established built in application. An application creation software tool is required for an application to be created and downloaded to the device.

Provide: Furnish, install, commission, test and warrant.

Router: A device that routes messages destined for a node on another segment sub-net or domain of the control network. The device controls message traffic based on node address and priority.

Stand-Alone Control: Refers to the digital controller performing required climate control and energy management functions without connection to another digital controller or computer. Requirements for stand-alone control are a time clock, a microprocessor, resident control programs, PID control and I/O.

Software: Generic term used for those components of the computer systems that are intangible rather than physical. The term "software" is used to refer to the programs executed by the computer systems as distinct from the physical hardware of the computer systems and encompasses any programs such as operating systems, applications programs, operating sequences and databases. The term "software" shall be interpreted to include firmware if, in the context in which it is used, the term "software" does not exclude the use of read-only memory and the use of firmware meets all of the applicable criteria detailed in these specifications.

Unitary Controller: A controller designed for a specific application and for a single piece of equipment. Examples are controllers for VAV, FCU, and Unit Ventilator.

- A. The above definitions shall apply to the words:
 - I. When they are in upper case, when they are in lower case and when they are capitalized.
 - II. In the singular and in the plural.
 - III. In all grammatical tenses.

1.7. Facility Management Control System

- A. FMCS installed under this specification shall have the following characteristics:
 - I. The entire Facility Management and Control System (FMCS) shall be comprised of a network of interoperable, standalone digital controllers communicating on an open protocol communication network via the internet to any terminal computer with access to the network.
 - II. A Network Area Controller (NAC), also referred to as a JACE, shall be provided as an interface between the WAN and the field control devices.
 - III. The control system shall be open implementation of LonWorks technology using the latest ANSI/EIA 709.1 as the communications protocol. Control sequence logic shall reside in DDC hardware in the building.
 - IV. The hardware shall be installed such that individual control equipment can be replaced by similar control equipment from other equipment manufacturers with no loss of system functionality. In Addition programing for hardware level equipment will be deployed solely from the manufacturer's software environment. No other software should be needed making the ability to program a piece of hardware from any web browser possible.
 - V. All necessary documentation, configuration information, configuration tools, programs, drivers, and other software shall be licensed to and otherwise remain with the County such that the County or their agents are able to perform repair, replacement, upgrades, and expansions

of the system without subsequent or future dependence on the contractor.

- VI. All DDC devices installed under this specification shall communicate via ANSI/EIA 709.1.
- VII. The automation level shall, primarily, include the DDC controllers that interface with the field sensors and final control elements.
- VIII. Distributed Control panels (DCP).
- IX. Unitary Controllers (UC).
- X. DCP controllers shall be freely programmable peer-to-peer controllers and shall have an I/O capability to handle major items of equipment such as air handling units, roof top units, chiller plants, heating plants, etc. The programmed DCP shall conform to the LonMark Interoperability Guide
- XI. UC shall be application specific and shall be suitable for the monitoring and control of specific items of smaller equipment such as VAV terminal units. UC shall be LonMark certified controllers. These UC shall operate on the same network as the LonWorks DCP or they shall operate on a separate network.
- XII. All LonWorks unitary controllers shall be LonMark certified and shall comply completely with the requirements of the Interoperability Association and ANSI/EIA-709.1 requirements.
- XIII. The FMCS Networks shall be LonWorks. No other protocols shall be used.

1.8. FMCS Description

- A. The contractor shall provide an open, interoperable peer-to-peer networked, distributed control system using ANSI/EIA Standard 709.1-A-1999, LonWorks® technology communication protocols. The system shall consist of LonWorks® based microprocessor-based controllers, plus instrumentation, control valves, automatic dampers when not furnished by others, operators, control devices, interface equipment, LonWorks® routers, LonWorks® communication interfaces, and other apparatus required to operate the building systems and perform functions specified. The software shall employ object-oriented technology for representing all data and control devices within the system. Adherence to industry standards ANSI/EIA Standard 707.1-A- 1999, LonWorks to assure interoperability between all components is required.
- B. FMCS shall have backward and forward compatibility.
- C. Systems shall be furnished and installed complete in all respects, including any and all equipment, controls, wiring, instrumentation, enclosures, labor, engineering, coordination with other trades, etc. No information given in (or omitted from) these specifications shall relieve the contractor of this absolute requirement. Include all associated electrical work except as noted. Work includes furnishing of all labor, superintendence, materials, tools, equipment and sources necessary for the complete installation or modification of the following systems as herein specified. It is the intent of these specifications that the Contractor shall furnish and install the systems complete in every respect and ready to operate. All equipment, miscellaneous items and accessories required for such installation and for the correct and convenient operation of the entire installation whether or not each such item or accessory is shown on the plans or mentioned in these specifications shall be furnished and installed.

- D. Bidder shall perform sufficient site investigations to include all requirements described in the construction documents. Bids shall include, at Bidder's discretion, costs related to site verifications for renovation projects. No additional costs shall be allowed for such items.

1.9. Miscellaneous Requirements

- A. Where drawings are provided as part of or supplement to these specifications, such drawings are inherently schematic only and not intended to convey all controls, wiring, installation, details, etc. It shall be the responsibility of the Facility Management and Control Systems (FMCS) contractor to verify that control approaches presented are appropriate for the HVAC systems involved, and that bids include all work described, specified, or otherwise necessary for a complete and functioning system.
- B. Schedule:
 - I. Contractor acknowledges that submission of bid constitutes agreement with and conformance to the completion dates.
- C. Codes, Permits, and Fees:
 - I. This contractor shall comply with all local, state and national codes, and shall secure and pay for all applicable costs, fees, permits, and licenses. No additional costs shall be allowed for these items.
- D. Other Conditions:
 - I. Safety:
 - a. Execute all work with the highest regard to safety. Comply with all laws governing safety, including the "Occupational Safety and Health Standards" and the "Safety and Health Regulations for Construction", State and federal. All applicable power tools used during construction shall have current approval under an approved Equipment Grounding Program, and shall bear the tag relating such. Contractor is solely responsible for all means and methods.
 - II. Coordination and Supervision:
 - a. Each bid shall include the necessary detail and interconnection work to coordinate his work with the work of other trades. Contractor shall keep competent supervisory personnel on the job whenever work is being performed by his trade.
 - III. Storage of Materials:
 - a. Each Contractor shall provide temporary storage facilities suitable for equipment stored at the job site. Storage facilities shall be weatherproof and lockable as required.
 - IV. Protection of Building and Materials:
 - a. Each Contractor shall take necessary precautions to prevent damage to existing buildings and to work of other trades.
 - V. Observations:
 - a. Site observation by Owner or Engineer is for express purpose of verifying compliance by Contractor with Contract Documents, and shall not be construed as construction supervision nor indication of approval of manner or location

in which work is being performed as being safe practice or place.

- b. Contractor is reminded that he shall also comply with all respects to the Invitation to Bid, General Conditions, Supplementary Conditions, Notice of Bidders, Instructions to Bidders, and all other governing parts of these specifications and the contract documents. These sections are included as part of the contract.
 - c. Where the term "Contractor" is used within these specifications, it shall be understood to mean an approved controls manufacturer/contractor, and facility management systems contractor.
- E. The Control System provided shall include all necessary, described, or specific elements, including but not limited to the following.
- I. Control Equipment:
 - a. Control interfaces, sensors, input/output devices, enclosures, panels, microprocessor control units, communication equipment, relays, switches, cables, connectors, wiring, and all other control devices and items.
 - b. Computer software for central control and monitoring. All cables, connectors and installation hardware. Provide complete functional system.
 - c. Engineering, programming, coordination, supervision, calibration, installation, all associated electrical work except as noted, testing, adjustments, commissioning, warranty, training, and service.
 - d. Application Specific Controllers (ASC) shall be LonMark certified.
 - e. Programmable Controllers shall be LonWorks and shall reference the Standard Points List and Graphics.
- F. The entire system shall be approved and listed by Underwriters Laboratories, Inc., under UL916 for energy management systems and FCC-Part 15 Subparagraph J Class A Emissions Requirements.
- G. Equipment and Software Updates/Upgrades:
- I. Equipment:
 - a. All equipment, components, parts, materials, etc. provided throughout the period of Work (as governed in the Agreement) shall be fully compatible with all other equipment, etc. provided at any other time throughout the period of Work. Should updated versions of equipment be provided which are not fully compatible with earlier equipment provided, Contractor shall replace earlier equipment with the later version at no cost to the Owner. A Jace 8000 with current software is recommended this will allow new hard ware with the ability to upgrade within an 18 month software to full N4 once the supervisor is upgraded first to N4.
 - II. Software:

- a. All software upgrades applicable to system and offered by the manufacturer/contractor for this system shall be provided at no cost to the Owner throughout the period of work and warranty. This no cost upgrade shall include installation, programming, modifications to field equipment, data base revisions, training, etc. as appropriate.
- H. The Engineer shall reserve all authority regarding approval, conditional approval, or rejection of systems not fully complying with these specifications.

1.10. Warranty

- A. The FMCS contractor shall guarantee all workmanship and material in the installed temperature regulation system for a period of one (1) year, such guarantee dating from the date of final acceptance of the entire air conditioning system by the Architect.
- B. During the warranty period, the temperature controls contractor shall respond to calls for warranty service within eight (8) working hours. Emergency service shall be obtainable within four (4) hours of notification by the Owner. Emergency service shall be obtainable on a 24 hour basis, seven (7) days per week.
- C. The temperature control contractor's office shall be within a 60-mile radius of the job site.
- D. The Owner shall grant to the Contractor, reasonable access to the FMCS system during the warranty period.
- E. Each Contractor shall guarantee all labor and materials furnished by him for a period of one (1) year.

1.11. Service

- A. All service of the system shall be furnished by the Contractor, at no cost to the Owner, for a period of one (1) year, concurrent with the warranty period specified above.

1.12. Shop Drawings

- A. Contractor shall provide one (1) electronic copy of shop drawings/submittals.
- B. The following information shall be included on the cover page for each shop drawing and equipment documentation submittal:
 - I. Project name.
 - II. Date.
 - III. Submittal number and re-submittal number, as appropriate.
 - IV. Name and address of Consultant.
 - V. Name and address of General Contractor.
 - VI. Name and address of FMCS subcontractor.
 - VII. Name and address of supplier or vendor, as appropriate.
 - VIII. Name of manufacturer.
 - IX. Reference to the applicable Specification Section by name and number.

- C. Shop drawings shall be CAD generated, minimum plot size of 11 x 17 inches. Drawings shall include diagrams, mounting instructions, installation procedures, equipment details and software descriptions for all aspects of the system to be installed. At minimum, the shop drawings shall be printed out and include:
 - I. FMCS topology schematic.
 - II. Installation drawings and schedules.
 - III. CCP, DCP, UC and other panel layouts, including floor plan location and interconnection drawings.
 - IV. Field instrumentation locations on floor plan drawings.
 - V. Schematic of systems indicating instrumentation locations.
 - VI. Installation details.
 - VII. Schedule of cabling including details of proposed cable types.
 - VIII. Composite drawings of all motor starter terminal strips, damper terminal strips, and interfaces to other equipment indicating all wiring by all subcontractors on the terminal strips.
 - IX. Points list showing all system objects and proposed English language object names.
 - X. Color prints of proposed graphics with a list of points for display.
 - XI. One finalized copy on flash drive shall remain in location of master JACE controller.
 - XII. Provide exact location of installed OAT sensor.
- D. Equipment submittals shall include design, performance and installation details for all aspects of the system to be installed. At minimum, the equipment documentation submittals shall include:
 - I. Equipment technical data sheets with mounting and installation details.
 - II. Operator terminal specifications and data sheets.
 - III. Details of networks/communications equipment, cabling and protocols proposed.
 - IV. Software specifications and descriptions including operating sequences.
 - V. Field sensor and instrumentation specification sheets.
 - VI. Damper and actuator specification sheets.
 - VII. Valves and actuator specification sheets.
 - VIII. Details of PID and other appropriate control algorithms.
 - IX. Training outline.
 - X. Details of piping and/or tubing proposed.

1.13. Record Documentation

- A. Provide Operators' Manuals with, at minimum, the following information:

- I. Detailed list of the database for all installed devices.
 - II. Details of all data base management functions and features.
 - III. The documentation shall include comprehensive and complete details including Neuron ID address, associated controller type, etc. as required and for the interface to the FMCS.
 - IV. All details and descriptions shall be in a step by step format such that an Operator/ Manager would be able to undertake the respective actions solely on the basis of information provided in the manuals and drawings.
- B. Provide hardware manuals which shall include, at minimum, the following:
- I. Specifications, maintenance requirements and installation requirements for all hardware components.
 - II. Record drawings and schedules of the completed installation including location of devices, mounting details, cabling details.
 - III. Operating sequences and interlocks.
 - IV. Names and addresses of spare parts suppliers.
- C. Record drawings shall be CAD generated and shall include, at minimum, the following:
- I. Details required by the shop drawings.
 - II. Final locations and point ID for each monitored and controlled device.
- D. Programming Software- The most recent version of the programming software for each type of programmable and ASC controller shall be submitted and shall be licensed to the County.
- E. Upon completion of the work, the Contractor shall provide the Owner with "record" layouts for the system. Layouts shall indicate all equipment and the function of each item shall be indicated.
- F. Operating instructions and as-built system flow diagrams and drawings shall be prepared, bound and delivered to the Owner. Each sensor, relay, switch, motor, controller, indicator (when inside panel), and item of equipment, etc., shall be identified with a number or mark identical to one which shall be tagged on each item. Large items of equipment may be identified by a suitable symbol listed in a legend on the control diagram.
- G. A backup of the station/stations is required upon job completion. As-built drawings should indicate what devices are on each communication line. Drawings should also include additional devices or communication lines that were added for the job.

1.14. Workmanship

- A. Contractor shall use only thoroughly trained and experienced workmen completely familiar with the items required and with the manufacturers recommended methods of installation. In all respects, the workmanship shall be of the highest grade, and all construction shall be done according to the best practice of the trade. Unless otherwise noted, conduit shall be concealed and installed square to the building lines. Any work not meeting

these requirements shall be replaced or rebuilt without extra expense to the Owner.

- B. The Bidder/Contractor shall be manufacturer and installer and ISO 9001/ISO9002.

1.15. Controls Manufacturers/Bidders

- A. Equipment and performance are intended as a standard of quality, but not as a means of excluding other approved Manufacturers/Control Contractors.
- B. Systems offered by other manufacturers/contractors which deviate slightly from these specifications, but which do not materially deviate from quality or performance, will also be acceptable, provided:
 - I. Complete written submittals of the equipment and system that the Contractor proposes to bid shall be provided ten (10) working days prior bid opening. Submittals shall include cut sheets and engineering data. Submittals of only brochures will not be accepted. Submittal shall also include basic system architecture schematic.
 - II. Manufacturers other than those listed below shall demonstrate their equipment in the Dallas ISD Bond Office or in the office of the Engineer and Complete engineering data and information shall be provided ten (10) working days prior bid opening. Demonstration of the equipment may also be required for Owner's personnel.
 - III. Submittals shall fully and explicit describe deviations, if any, from the specified performance.
 - IV. Approval of such submittals by the Engineer is provided via an addendum issued not less than five (5) days prior to bid opening.
 - V. The written deviations become an additional factor upon which bids may be evaluated, at the direction of the Engineer or Owner.
 - VI. Seven references of school work in Texas are provided.
- C. Energy Management Control Systems shall be as follows or equal and have an authorized letter of recommendation from manufacturer.
 - I. Distech Controls by Authorized System Integrators
 - II. Johnson Controls Metasys
 - III. Trane Ensemble
 - IV. Tridium Niagara Controls
- D. The Engineer and Owner shall reserve all authority regarding approval, conditional approval, or rejection of systems not fully complying with these specifications.

1.16. Graphics

- A. All graphical interfaces shall use standard devices that are available with the JACE. No proprietary graphics shall be utilized on these projects unless prior written approval by Owner
- B. The graphics provided shall be part of the Control Contractor's proposal. The purchase of additional licenses or graphics shall not be required for a complete and working graphical interface including dashboard or control panels, trends, alarms, etc.

- C. A text block shall be displayed on each graphic page, labeling the brand of controller associated with the piece of equipment shown.
- D. For air handling units, a description of what building area each unit serves is to be displayed on the graphic page.
- E. The display resolution for the graphics pages is to be at minimum 1280x800.
- F. The facility layout is to display relevant room numbers and unit(s) associated with that room.

1.17. Electrical Power Provisions

- A. 24Vac and below power shall be provided by the controls contractor. 120Vac power shall be provided by the electrical contractor. DDC contractor responsible for coordination with electrical contractor for all controls related 120Vac power requirements. Power fed from the normal power circuits will be provided at the following locations:
 - I. NAC panel location.
 - II. VAV Box Step Down Transformers
- B. Normal power shall be provided to the UC serving fan powered terminal units via the control transformer provided with the unit.
- C. Provide the necessary low voltage power to the UC provided that will serve VAV terminal units from the power sources indicated above. Provide step down transformers within panel enclosures. Provide all necessary fuses and circuit protection devices (100 VA load per disconnect and fuse maximum).
- D. Low voltage power shall be provided to the dampers interlocked to fans via the control transformer provided with the motor starter.
- E. All components of the FMCS shall be powered from the sources above.
- F. The FMCS subcontractor shall provide any additional power that is required as part of this contract. This shall include all conduit, cabling, circuit breakers, interfaces, etc.

PART 2. PRODUCTS

2.1. Materials

A. General:

- I. All materials and equipment used shall be standard components, of regular manufacture for this application. All systems and components shall have been thoroughly tested and proven in actual use.
- II. Exceptions to the specification will qualify bid as unacceptable.

B. Control Valves:

- I. Control valves shall be globe type constructed for tight shutoff and shall operate satisfactorily against system pressures and differentials. Provide two way or three way pattern as shown on the plans.
- II. Valves with size up to and including 2-1/2" shall be "screwed". 3" and larger valves shall be "flanged" configuration.
- III. Valves larger than 4" shall be butterfly. Water control valves shall be

sized for a maximum pressure drop of 5.0 psig at rated flow (except as noted).

- IV. Steam control valves shall be sized for a pressure drop equal to 80% of the inlet pressure.
 - V. Two-way control valves shall exhibit equal percentage characteristics. Two-position control valves shall be line size. Ball valves are acceptable for floating or two-position operation where valve size is less than 1 inch.
- C. Provide butterfly valves at the following locations:
- I. Cooling tower bypass.
 - II. Chiller isolation.
 - III. Chilled water bypass.
- D. Butterfly valves shall meet, at minimum, the following requirements:
- I. Full lugged type. Semi-lug and wafer valves are not acceptable.
 - II. Valves shall be full line size.
 - III. Valve body shall be one of the following:
 - a. Carbon steel.
 - b. 316 stainless steel.
 - c. Cast iron.
 - d. Nickel aluminum bronze.
 - IV. Disc shall be one of the following:
 - a. 316 stainless steel.
 - b. Monel.
 - V. Stem shall be stainless steel.
 - VI. Seat shall be replaceable shall have a stainless steel, titanium, Inconel or equivalent metal retaining ring and shall be one of the following:
 - a. Polymer (PTFE)
 - b. 316 stainless steel
 - c. Resilient elastomer (EPDM)
 - d. Monel
 - VII. Packing shall be PTFE or equivalent.
 - VIII. Disc pins, where required to secure shaft to disc, shall be 316 stainless steel.
- E. Valve Actuators:
- I. The FMCS subcontractor shall provide electric actuators for all control valves that are furnished as part of the FMCS contract. Two way and three way control valve actuators shall meet, at minimum, the following requirements:

- II. Motor driven type.
 - III. Integral self-locking gear train, mechanical travel stops and two adjustable travel limit switches with electrically isolated contacts. Gear assembly shall be made of hardened steel. No plastic components shall be acceptable.
 - IV. Rated for continuous duty against the maximum system operating pressure. Actuator shall have an input voltage of 24 VAC.
 - V. Valves exposed to exterior elements shall be NEMA – 4 rated.
 - VI. Sized to meet the shut-off requirements when operating at the maximum system differential pressure and with the installed system pump operating at shut-off head. Actuators shall control against system maximum working pressures.
 - VII. Normal and failure positions shall be as indicated in the Operating Sequences.
 - VIII. Visual mechanical position indication, showing valve position.
 - IX. Equipped with an integral position potentiometer to indicate the stem position of the valve if required by the sequence of operation.
 - X. Manual declutch lever to enable manual operation of the valve. It shall be possible for an operator to manually modulate valves located in mechanical rooms in the event of loss of power.
 - XI. Actuator shall be manufactured by Belimo or approved equal.
- F. The FMCS subcontractor shall provide electric actuators for all butterfly valves provide as part of the FMCS contract. The butterfly control valve actuators shall meet the following requirements:
- I. Motor driven type.
 - II. Integral self-locking gear train, mechanical travel stops and two adjustable travel limit switches with electrically isolated contacts. Gear assembly shall be made of hardened steel. No plastic components shall be acceptable.
 - III. Rated for continuous duty and have an input voltage of 120 VAC.
 - IV. Housing shall be NEMA 4 rated. The actuator cover shall be aluminum or material of equivalent strength and have captive bolts to eliminate loss of bolts when removing the cover from the base. Materials of construction shall be non-corroding.
 - V. Sized to meet the shut-off requirements when operating at the maximum system differential pressure and with the installed system pump operating at shut-off head. Actuators shall control against system maximum working pressures.
 - VI. Valves shall fail as in the last commanded position or as indicated in the Operating Sequences.
 - VII. Visual mechanical position indication, showing valve position and remote indication located in display panels.
 - VIII. Equipped with an integral position potentiometer to indicate the stem position of the valve if required by the sequences of operation.

- IX. Provide for the manual modulation (opening/closing) of the valve in the event of malfunction.
- X. Chiller Isolation shall have auxiliary contacts for electrical hardwiring to facilitate interlock of chilled water pumps with Chiller.
- G. Electronic valve actuators shall be suitable for direct-coupled mounting to the valve bonnet. Valve actuators shall be properly sized to provide sufficient torque to position the valve throughout its operating range. All valve actuators shall be spring return. Where butterfly valves are specified, double acting non-spring return actuators may be used. Unless otherwise stated, provide normally open valves for heating water applications and normally closed valves for chilled water applications.
- H. Terminal unit reheat valve actuators shall be suitable for direct-coupled mounting to the valve bonnet. Valve actuators shall be properly sized to provide sufficient torque to position the valve throughout its operating range. Non-spring return tri-state floating valve actuators may be used on terminal units where the valve is less than 1 inch.
- I. Control Air Dampers
 - I. Control Air dampers shall be parallel blade for two-position control and opposed blade for modulating control applications. Dampers shall be galvanized with nylon bearings. Blade edge and tip seals shall be included for all dampers. Leakage through the damper shall not exceed 20 CFM per square foot at 4" w.c. (based on a 48" x 48" test sample). Blades shall be 16-gauge minimum and 10" wide maximum and frame shall be of welded channel iron. Dampers over 48" wide shall be equipped with a jackshaft to provide sufficient force throughout the intended operating range.
- J. Damper Actuators:
 - I. Electronic damper actuators shall be direct-couple rotary type, suitable for mounting directly on the damper end shaft. Electronic damper actuators shall be properly sized to provide sufficient torque to position the damper throughout its operating range. Damper actuators used on economizer and/or outside air dampers shall be spring return.
 - II. Terminal unit damper actuators shall be electric, low voltage, utilizing floating control. On single duct VAV applications, VAV box damper actuators shall be an integral part of the DDC VAV box controller.
- K. Control Panels:
 - I. All direct digital controllers located indoors shall be installed in NEMA 1 enclosures. All direct digital controllers located outdoors shall be installed in NEMA 3R enclosures. Enclosures shall be of suitable size to accommodate all power supplies, relays and accessories required for the application. Each enclosure shall include a perforated subpanel for direct mounting of the enclosed devices. Include matched key locks for all enclosures provided.
- L. Differential Pressure Switches (Air):
 - I. Provide differential pressure switches across fans and filters for status indication. Differential pressure switches shall have an

adjustable setpoint from 0.05" w.c. to 2" w.c. with a switch differential that progressively increases from 0.02" w.c. at minimum to 0.8" w.c. at maximum. Switch shall be SPDT rated for 15A (non-inductive) at 277VAC.

- M. Differential Pressure Switches (Liquid):
 - I. Provide differential pressure switches across pumps and chillers to prove flow. Differential pressure switches shall have a 0-150 psig working differential pressure and have an adjustable setpoint from 4" w.c. to 43.5" w.c. on a fall and 5.5" w.c. to 45" w.c. on a rise.
 - II. Liquid differential pressure switch enclosure shall carry a NEMA 4 rating. Switch shall be SPDT rated for 5A (inductive) at 125VAC.
- N. Float Switches:
 - I. Provide float switches in condensate drain pans as required by code. Float switches shall utilize a magnetically actuated dry reed switch. Float shall be constructed of seamless polypropylene. Switch shall be SPDT rated for 16A (non-inductive) at 120VAC.
- O. Smoke Detectors
 - I. The temperature control contractor shall be responsible for interlock wiring between duct smoke detectors and starter safety circuits.
- P. Static High Limit Controllers:
 - I. Discharge static high limit controllers shall be provided on all VAV AHU systems. When discharge static pressure exceeds setpoint, the supply fan shall be de-energized. Manual reset shall be required.
- Q. Static Pressure Transducers:
 - I. Provide static pressure transducers for monitoring supply duct static pressure. Static pressure transducers shall be 100% solid state and shall include glass on silicon, ultra-stable capacitance sensors. Each static pressure transducer shall incorporate short circuit and reverse polarity protection. Transmitter output shall be either 0-10Vdc or 4-20mA. Static pressure transducers are to be provided in an enclosure that is suitable for duct mounting. The desired setpoint is to be in the top 50% of the transmitter's operating range.
- R. Differential Pressure Transducers (Air):
 - I. Provide differential pressure transducers for monitoring air system and airflow measuring station differential pressures. Differential pressure transducers shall be 100% solid state and shall include glass on silicon, ultra-stable capacitance sensors. Each differential pressure transducer shall incorporate short circuit and reverse polarity protection. Transducer output shall be either 0-10Vdc or 4-20mA. Differential pressure transducers are to be provided in an enclosure that is suitable for duct mounting. The desired setpoint is to be in the top 50% of the transducer's operating range.
- S. Line Pressure Transducers (Liquid):
 - I. Provide line pressure transducers for monitoring hydronic system line pressures. Pressure transducers shall be 100% solid state and

shall include diffused piezoresistive silicon wafer type sensors. Transducer output shall be either 0-10Vdc or 4-20mA. Pressure transducers shall not require additional nulling valves. Pressure transducers are to be provided in a field mounted enclosure and all wetted parts shall be constructed from materials that are suitable for operation in the measured medium. The desired setpoint is to be in the top 50% of the transducer's operating range.

T. Differential Pressure Transducers (Liquid):

- I. Provide differential pressure transducers for monitoring hydronic system differential pressure. Differential pressure transducers shall be 100% solid state and shall include dual diffused piezoresistive silicon wafer type sensors. Transducer output shall be either 0-10Vdc or 4-20mA. Differential pressure transducers shall not require additional nulling valves. Differential pressure transducers are to be provided in a field mounted enclosure and all wetted parts shall be constructed from materials that are suitable for operation in the measured medium. The desired setpoint is to be in the top 50% of the transducer's operating range.

U. Airflow Measuring Stations:

- I. Where shown on the plans, provide airflow measuring stations utilizing multiple point averaging sensors for total pressure measurement and bullet-nose probes for static pressure measurement. Airflow measuring stations shall be factory assembled units with a sheet metal casing of at least 16 gauge galvanized steel. Airflow measuring stations shall be equipped with 3/8" aluminum hexagon cell straightening vanes. Pressure drop across airflow measuring station shall be less than .13" w.c. at 2000 FPM with the straightening vanes installed. Accuracy of airflow measurement shall be +/- 2% at 6000 FPM inlet velocity and +/- 0.5% at 2000 FPM inlet velocity.

V. Liquid Flow Meters:

- I. Provide insertion type flow meters for monitoring system hydronic system flow. Flow meters shall be 100% solid state and shall include paddle type non-magnetic, non- photoelectric sensors. Flow meters shall be provided with "hot tap" isolation valves and all accessories for bi-directional flow. Flow meter transmitter supply voltage to be 24VAC unregulated. Flow meter output shall have either a 4-20mA or pulse output that is linear with the flow rate.

W. Current Sensing Relays:

- I. Provide current switches for indication of equipment status. Amperage ratings shall be adjustable with the desired setpoint to be in the top 50% of the current relay's operating range. Current sensing relays shall incorporate trip indication LED's and shall be sized for proper operation with the equipment served.

X. Relative Humidity Sensors:

- I. Relative humidity sensors shall have an accuracy of +/- 3% from 5 to 95% RH. Output signal shall be either 0-10Vdc or 4-20mA. Humidity transmitters shall be factory calibrated and require no field setting.

Y. CO2 Sensors:

- I. CO2 sensors shall be space or duct mounted carbon dioxide sensors as required by the application. Space CO2 sensors shall be mounted next to space temperature sensors. The sensor shall have a range of 0-2000 ppm with an accuracy of $\pm 5\%$. The response time for the sensor shall be less than one minute. The sensor shall be capable of providing an analog signal proportional to the CO2 level sensed. The signal shall be either 0-10Vdc or 4-20mA.

Z. Temperature Sensors:

- I. Duct/Well Sensors: Sensors for duct and water temperature sensing shall incorporate either RTD or Thermistor sensing devices. Sensing element accuracy shall be 0.1% over the sensor span or better. Where the element is being used for sensing mixed air or coil discharge temperatures and/or the duct cross sectional area is in excess of 14 square feet, the element shall be of the averaging type. Averaging duct sensors shall utilize a 6, 12 or 24 foot sensing element. Immersion sensors shall use matched 316 stainless steel bulb wells. All duct and immersion sensors shall be provided with conduit connection housings. Sensors shall be provided with adequate standoffs for insulation installation. No Strap on sensors are allowed.

AA. Space Sensors:

- I. Wall mounted space temperature sensor: Provide wall mounted temperature sensors for spaces as indicated within the Point Schedules. Temperature sensors shall meet, at minimum, the following requirements:
- II. White protective enclosure without temperature indication, set point indication, or reset.
- III. Location as shown on the Mechanical Drawings. No sensor shall be mounted until specific location instructions are given.
- IV. 10,000 ohm at 25 ° C. (77 ° F.) thermistor.
- V. FMCS shall report the monitored temperature with an accuracy of ± 0.5 ° F.
- VI. For DX Rooftop Units and split systems, space sensors shall have LCD display with occupancy and setpoint override capability.

BB. Selector Switches:

- I. Selector switches shall be 2 or 3-position, knob or key type as required by the sequence of operation. Selector switches shall feature oil tight construction and be fitted with snap-fit contact blocks rated for 10A, 600VAC/DC operation. Labels shall be provided indicating switch position.

CC. Pushbutton Switches:

- I. Pushbutton switches shall be either maintained or momentary as required by the sequence of operation. Pushbutton switches shall feature oil tight construction and be fitted with snap-fit contact blocks rated for 10A, 600VAC/DC operation. Labels shall be provided

indicating switch function.

- DD. Pilot Lights:
- I. Pilot lights shall be furnished as required by the sequence of operation. Pilot lights shall utilize multi-colored dome lenses and replaceable LED lamps. Labels shall be provided to indicate light function.
- EE. Outside air temperature and humidity sensor: Provide outside air temperature and humidity sensors as indicated within the Point Schedules. Temperature sensors shall meet, at minimum, the following requirements:
- I. Ventilated white PVC sun shield.
 - II. Wall mount weather proof enclosure with conduit fitting.
 - III. 10,000 ohm at 25°C. (77 °F.) thermistor.
 - IV. FMCS shall report the monitored temperature with an accuracy of ± 0.5 °F.
- FF. Freeze Stat: Provide freeze stats for all air handling systems that receive untreated outside air. Freeze stats shall meet, at minimum, the following requirements
- I. Minimum 20 feet vapor tension element, which shall serpentine the inlet face on all coils. Provide additional sensors, wired in series, to provide one linear foot per square foot of coil surface area
 - II. Interlock to the associated fan so that the fan will shut down when HOA switch is in Hand or Auto position.
 - III. Manual Reset
 - IV. Set point shall be adjustable in the range of, at a minimum, 32 °F to 45 °F. Provide a scale with temperature setting clearly displayed.
 - V. Rated for 16 amps at 120 Vac
 - VI. Provide suitable supports
- GG. Momentary control relays: Provide momentary control relays as indicated within the Point Schedules and sequences of operation. Relays shall meet, at minimum, the following requirements:
- I. Coil ratings of 120 VAC, 50 mA or 10-30 VAC/VDC, 40 mA as suitable for the application.
 - II. Provide complete isolation between the control circuit and the digital output.
 - III. Located in the DCP, UC or other local enclosures.
 - IV. 10 amp contact rating.
 - V. LED status indication.
 - VI. Temperature
 - VII. Rated for 16 amps at 120 Vac.
 - VIII. UL approved.

- HH. Photocell: Provide ambient light level sensors as indicated within the Point Schedules. Light level sensor shall meet, at minimum, the following requirements:
- I. Non-corroding and weatherproof housing with sensor shield suitable for exterior installations.
 - II. 4-20 mA output proportional to the ambient light level.
 - III. Accuracy at room temperature: $\pm 1\%$, 100° F. temperature: $\pm 2.5\%$.
 - IV. Solid-state photo diode circuitry and transducer as required.
 - V. Mounted on the exterior of a North wall on the roof.
 - VI. Sensor reading from 0 to 750 foot candles.
 - VII. Temperature and humidity independent.
 - VIII. Temperature range of 10° F to 120° F
 - IX. Provide an emergency shut-off control button outside each chiller plant room entrance/exit door. Button shall be mounted at 48 inches above finished floor adjacent to refrigerant leak detection alarm light. Activation of any one of the buttons shall de-energize all chillers and other electrical equipment within the chiller plant room. Button shall be manually reset.
 - II. Emergency Shut-Off Button: shall be highly visible to be used to shut down equipment during emergency conditions. Contacts shall be rated for 600V at 10A AC and 2.5A DC. Button shall be red in color, 1.5 inches in diameter and require manual reset. Label shall read: "Emergency – Shut Off". Enclosure shall be made of metal and be suitable for either flush mount or surface mount as application warrants.

2.2. FMCS Network

- A. The intent of this specification is to provide a peer-to-peer networked, stand-alone, distributed control system. The FMCS shall provide communication between the various DDC controllers over a Local Area Network (LAN) that consists of a twisted pair of 24 AWG shielded wires.
- B. The controller LAN shall be a high-speed "bus type" network over which information is transmitted in a global fashion between all nodes on the network. The controller LAN shall have the capacity to contain 64 nodes at a minimum.
- C. FMCS LAN shall meet, at minimum, the following requirements:
 - I. Peer-to-peer.
 - II. LonTalk communication protocol
 - III. Data transfer rate and data throughput as required to meet the alarm annunciation requirements.
 - IV. The failure of any node on the secondary LAN shall in no way affect the operation of the FMCS except to inhibit monitoring and control functions at the HMI for that node or any devices served by the failed node.
- D. The failure of any node shall not inhibit the communication between

remaining nodes.

- E. Each Jace controller as initially configured shall have the capacity to add 25 percent expansion for future controls.
- F. Single HMI systems shall utilize a support node interface device to convert, buffer and filter the controller LAN data to the HMI RS-232 data port. These node interface devices shall support a local hardwired HMI. The node interface shall allow an HMI to interface to the Controller LAN at any point on the network directly or via Ethernet without having to be connected to JACE in order to communicate with the system.
- G. To ensure high throughput, data transmission shall use "packetized" communication techniques, such that dozens of "messages" are contained in each "packet". The "turnaround time" for a global point to be received by any node, including HMIs, shall be less than three seconds. The FMS shall utilize the above LAN architecture to allow all of the Control Units to share data as well as to globalize alarms. The Controller LAN shall be based upon a peer-to-peer, token passing.

2.3. Network Area Controller (Nac)

- A. Network Area Controller (NAC) shall be equal to a JACE 8000 or greater with license to handle at minimum 200 devices. The NAC shall be provided with the necessary LonWorks hardware and software for complete integration and functionality. The NAC shall also be provided with all drivers, software, hardware, configuration, etc. that is necessary to integrate all legacy FMCS systems at each campus. It is the responsibility of the contractor providing the NAC to verify the legacy FMCS systems at each campus where work is occurring. If no drivers are available for a specific legacy FMCS system, the contractor shall notify the Owner and Engineer in writing.
- B. The Network Area Controller (NAC) shall provide the interface between the WAN and the field control devices, and provide global supervisory control functions over the control devices connected to the NAC. It shall be capable of executing application control programs to provide:
 - I. Calendar functions
 - II. Scheduling
 - III. Trending
 - IV. Alarm monitoring and routing
 - V. Time synchronization
 - VI. Integration of LonWorkscontroller data
 - VII. Network Management functions for all LonWorks based devices
- C. The NAC must provide the following hardware features as a minimum:
 - I. Two Ethernet Ports – 10/100 Mbps
 - II. One RS-232 Port
 - III. One RS-485 Port
 - IV. One LonWorks nterface Port – 78 KB FTT-10A
 - V. Provide minimum 32 gigabyte Micro SD card with each JACE for

local station backup.

- VI. The NAC must be capable of operation over a temperature range of 0 to 55°C
- VII. The NAC must be capable of withstanding storage temperatures of between 0 and 70°C
- VIII. The NAC must be capable of operating over a humidity range of 5 to 95% RH, non- condensing
- D. The NAC shall provide multiple user access to the system and support for ODBC or SQL. A database resident on the NAC shall be an ODBC compliant database or must provide an ODBC data access mechanism to read and write data stored within it.
- E. The NAC shall support standard web browser access via the Intranet/Internet. It shall support a minimum of 16 simultaneous users.
- F. Event Alarm Notification Actions
 - I. The NAC shall provide alarm recognition, storage; routing, management, and analysis to supplement distributed capabilities of equipment or application specific controllers.
 - II. The NAC shall be able to route any alarm condition to any defined user location whether connected to a local network or remote via wide-area network.
 - III. Alarm generation shall be selectable for annunciation type and acknowledgement requirements including but limited to:
 - a. To alarm
 - b. Return to normal
 - c. To fault
 - IV. Provide for the creation of a minimum of eight of alarm classes for the purpose of routing types and or classes of alarms, i.e.: Critical, HVAC, Energy, etc.
 - V. Provide timed (schedule) routing of alarms by class, object, group, or node.
 - VI. Provide alarm generation from binary object “runtime” and /or event counts for equipment maintenance. The user shall be able to reset runtime or event count values with appropriate password control.
- G. The following alarms shall be provided for each HVAC system type:

| VAV AHU ALARMS | Alarm Class | Annunciation |
|-----------------------|--------------------|---------------------|
| Freeze Stat Alarm | HVAC | Graphic |
| High Static Alarm | HVAC | Graphic |
| Smoke/Fire Alarm | HVAC | Graphic |
| Low Static Alarm | HVAC | Graphic |
| | | |

| | | |
|---------------------------------|----------|---------------|
| <u>CV AHU ALARMS</u> | | |
| Freeze Stat Alarm | HVAC | Graphic |
| Smoke/Fire Alarm | HVAC | Graphic |
| Low Mixed Air Temperature | HVAC | Graphic |
| <u>Chiller</u> | | |
| General Alarm | Critical | Graphic/Email |
| <u>Pumps</u> | | |
| Freeze Protection Failure Alarm | Critical | Graphic/Email |
| <u>Boiler</u> | | |
| General Alarm | Critical | Graphic/Email |
| <u>Rooftop Units</u> | | |
| Economizer Failure | HVAC | |

- H. Control equipment and network failures shall be treated as alarms and annunciated.
- I. Alarms shall be annunciated in any of the following manners as defined by the user:
 - I. Screen message text
 - II. Email of the complete alarm message to multiple recipients. Provide the ability to route and email alarms based on:
 - a. Day of week
 - b. Time of day
 - c. Recipient
 - III. Graphic with flashing alarm object(s)
- J. The following shall be recorded by the NAC for each alarm (at a minimum):
 - I. Time and date
 - II. Location (building, floor, zone, office number, etc.)
 - III. Equipment (air handler #, access way, etc.)
 - IV. Acknowledge time, date, and user who issued acknowledgement.
 - V. Number of occurrences since last acknowledgement.
- K. Alarm actions may be initiated by user defined programmable objects created for that purpose.

- L. Defined users shall be given proper access to acknowledge any alarm, or specific types or classes of alarms defined by the user.
- M. A log of all alarms shall be maintained by the NAC and/or a server (if configured in the system) and shall be available for review by the user.
- N. Provide a "query" feature to allow review of specific alarms by user defined parameters.
- O. A separate log for system alerts (controller failures, network failures, etc.) shall be provided and available for review by the user.
- P. An Error Log to record invalid property changes or commands shall be provided and available for review by the user.

2.4. Software License Agreement

- A. The controls contractor 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 the Owner as defined by the manufacturer's license agreement, but shall protect the manufacturer's rights to disclosure of trade secrets contained within such software.
- B. The open NICS license must contain the following statements
 - I. accept.station.in="**"
 - II. accept.station.out="**"
 - III. accept.wb.in="**"
 - IV. accept.wb.out="**"
- C. Provide a printed copy of the license agreement as part of the submittal package.

2.5. Data Collection And Storage

- A. The NAC shall have the ability to collect data for any property of any object and store this data for future use.
- B. The data collection shall be performed by log objects, resident in the NAC that shall have, at a minimum, the following configurable properties:
 - I. Designating the log as interval or deviation.
 - II. For interval logs, the object shall be configured for time of day, day of week and the sample collection interval.
 - III. 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.
 - IV. For all logs, provide the ability to set the maximum number of data stores for the log and to set whether the log will stop collecting when full, or rollover the data on a first- in, first-out basis.
 - V. Each log shall have the ability to have its data cleared on a time-based event or by a user-defined event or action.
- C. All log data shall be stored in a relational database in the NAC and the data shall be accessed from a server (if the system is so configured) or a standard

Web browser.

- D. All log data, when accessed from a server, shall be capable of being manipulated using standard SQL statements.
- E. All log data shall be available to the user in the following data formats:
 - I. HTML
 - II. XML
 - III. Plain Text
 - IV. Comma or tab separated values
- F. Systems that do not provide log data in HTML and XML formats at a minimum shall not be acceptable.
- G. The NAC shall have the ability to archive its log data either locally (to itself), or remotely to a server or other NAC on the network. Provide the ability to configure the following archiving properties, at a minimum:
 - I. Archive on time of day
 - II. Archive on user-defined number of data stores in the log (buffer size)
 - III. Archive when log has reached its user-defined capacity of data stores
 - IV. Provide ability to clear logs once archived

2.6. Audit Log

- A. Provide and maintain an Audit Log that tracks all activities performed on the NAC. Provide the ability to specify a buffer size for the log and the ability to archive log based on time or when the log has reached its user-defined buffer size. Provide the ability to archive the log locally (to the NAC), to another NAC on the network, or to a server. For each log entry, provide the following data:
 - I. Time and date
 - II. User ID
 - III. Change or activity: i.e., Change setpoint, add or delete objects, commands, etc.

2.7. Database Backup And Storage

- A. The NAC shall have the ability to automatically backup its database. The database shall be backed up based on a user-defined time interval.
- B. Copies of the current database and, at the most recently saved database shall be stored in the NAC. The age of the most recently saved database is dependent on the user-defined database save interval
- C. The NAC database shall be stored, at a minimum, in XML format to allow for user viewing and editing, if desired. Other formats are acceptable as well, as long as XML format is supported.

2.8. 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™, Google Chrome or Mozilla Firefox™. Systems requiring additional software (to

enable a standard Web browser) to be resident on the client machine, or manufacture- specific browsers shall not be acceptable.

- B. The Web browser software shall run on any operating system and system configuration that is supported by the Web browser. Systems that require specific machine requirements in terms of processor speed, memory, etc., in order to allow the Web browser to function with the FMCS, shall not be acceptable.
- C. The Web browser shall provide the same view of the system, in terms of graphics, schedules, calendars, logs, etc., and provide the same interface methodology as is provided by the Graphical User Interface. Systems that require different views or that require different means of interacting with objects such as schedules, or logs, shall not be permitted.
- D. The Web browser client shall support at a minimum, the following functions:
 - I. 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 and encryption techniques to prevent unauthorized access shall be implemented.
 - II. Graphical screens developed for the GUI shall be the same screens used for the Web browser client. Any animated graphical objects supported by the GUI shall be supported by the Web browser interface.
 - III. HTML programming shall not be required to display system graphics or data on a Web page. HTML editing of the Web page shall be allowed if the user desires a specific look or format.
 - IV. Storage of the graphical screens shall be in the Network Area Controller (NAC), without requiring any graphics to be stored on the client machine. Systems that require graphics storage on each client are not acceptable.
 - V. Real-time values displayed on a Web page shall update automatically without requiring a manual "refresh" of the Web page.
 - VI. Users shall have administrator-defined access privileges. Depending on the access privileges assigned, the user shall be able to perform the following:
 - a. Modify common application objects, such as schedules, calendars, and set points in a graphical manner.
 - b. Schedule times will be adjusted using a graphical slider, without requiring any keyboard entry from the operator.
 - c. Holidays shall be set by using a graphical calendar, without requiring any keyboard entry from the operator.
 - d. Commands 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.
 - e. View logs and charts.

- f. View and acknowledge alarms.
- VII. The system shall provide the capability to specify a user's (as determined by the log-on user identification) home page. Provide the ability to limit a specific user to just their defined home page. From the home page, links to other views, or pages in the system shall be possible, if allowed by the system administrator.
- VIII. Graphic screens on the Web Browser client shall support hypertext links to other locations on the Internet or on Intranet sites, by specifying the Uniform Resource Locator (URL) for the desired link.

2.9. System Programming

- A. The Graphical User Interface software (GUI) shall provide the ability to perform system programming and graphic display engineering as part of a complete software package. Access to the programming functions and features of the GUI shall be through password access as assigned by the system administrator.
- B. A library of control, application, and graphic objects shall be provided 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 linking them together using a built in graphical connection tool. Completed applications may be stored in the library for future use. Graphical User Interface screens shall be created in the same fashion. Data for the user displays is obtained by graphically linking the user display 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 display. Systems requiring separate software tools or processes to create applications and user interface displays shall not be acceptable.
- C. No third party licensed software shall be used. All programming of field devices will be done through the Manufacturer's software or tools. If necessary a standard web browser can be used to modify or program any field device.
- D. Programming Methods
 - I. 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 linking 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 are 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.
 - II. Configuration of each object will be done through the object's property sheet using fill- in the blank fields, list boxes, and selection buttons. Use of custom programming, scripting language, or a manufacturer-specific procedural language for configuration will not be accepted.
 - III. The software shall provide the ability to view the logic in a monitor mode. When on- line, the monitor mode shall provide the ability to view the logic in real time for easy diagnosis of the logic execution.

When off-line (debug), the monitor mode shall allow the user to set values to inputs and monitor the logic for diagnosing execution before it is applied to the system.

- IV. All programming shall be done in real-time. Systems requiring the uploading, editing, and downloading of database objects shall not be allowed.
- V. 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.

2.10. Lonworks network management

- A. The Graphical User Interface software (GUI) shall provide a complete set of integrated LonWorks network management tools for working with LonWorks networks. These tools shall manage a database for all LonWorks devices by type and revision, and shall provide a software mechanism for identifying each device on the network. These tools shall also be capable of defining network data connections between LonWorks devices, known as "binding". Systems requiring the use of third party LonWorks network management tools shall not be accepted.
- B. Network management shall include the following services: device identification, device installation, device configuration, device diagnostics, device maintenance and network variable binding.
- C. The network configuration tool shall also provide diagnostics to identify devices on the network, to reset devices, and to view health and status counters within devices.
- D. These tools shall provide the ability to "learn" an existing LonWorks network, regardless of what network management tool(s) were used to install the existing network, so that existing LonWorks devices and newly added devices are part of a single network management database.
- E. The network management database shall be resident in the Network Area Controller (NAC), ensuring that anyone with proper authorization has access to the network management database at all times. Systems employing network management databases that are not resident, at all times, within the control system, shall not be accepted.

2.11. 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. All control objects shall conform to the control objects specified in the LonWorks specification.
- E. The library shall include applications or objects for the following functions, at a minimum:
 - I. Scheduling Object. The schedule must conform to the schedule object as defined in the LonWorks specification, providing 7-day plus holiday & temporary scheduling features and 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.
 - II. Calendar Object. . The calendar must conform to the calendar object as defined in the LonWorks specification, providing 12-month calendar features 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.
 - III. 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.
 - IV. 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.
 - V. 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.
 - VI. 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.

- F. The library shall include control objects for the following functions. All control objects shall conform to the objects as specified in the LonWorks specification.
- I. Analog Input Object - Minimum requirement is to comply with the LonWorks 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.
 - II. Analog Output Object - Minimum requirement is to comply with the LonWorks standard for data sharing.
 - III. Binary Input Object - Minimum requirement is to comply with the LonWorks 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.
 - IV. Binary Output Object - Minimum requirement is to comply with the LonWorks standard for data sharing. Properties to enable minimum on and off times for equipment protection as well as interstart delay must be provided. The LonWorks Command Prioritization priority scheme shall 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 the LonWorks method of contention resolution shall not be acceptable.
 - V. PID Control Loop Object - Minimum requirement is to comply with the LonWorks 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.
 - VI. 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.
 - VII. 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.
 - VIII. 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.

- IX. 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.
 - X. 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.
 - XI. 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.
- G. The object library shall include objects to support the integration of devices connected to the Network Area Controller (NAC). At a minimum, provide the following as part of the standard library included with the programming software:
- I. LonMark/LonWorks devices. These devices shall include, but not be limited to, devices for control of HVAC, lighting, access, and metering. Provide LonMark manufacturer- specific objects to facilitate simple integration of these devices. All network variables defined in the LonMark profile shall be supported. Information (type and function) regarding network variables not defined in the LonMark profile shall be provided by the device manufacturer.
 - II. For devices not conforming to the LonMark standard, provide a dynamic object that can be assigned to the device based on network variable information provided by the device manufacturer. Device manufacturer shall provide an XIF file, resource file and documentation for the device to facilitate device integration.

2.12. Network level controllers (NLC)

- A. Network Level Controller (LonWorks® programmable nodes) shall be used for all chiller, boiler, pumps, and AHU applications on this project as well as

- gateway interfaces to third party monitors/controllers, if required
- B. NLCs shall be equipped with a 3120® Neuron® with co-processor or 3150® Neuron® microprocessor controller, (flash or EEPROM) memory for general data processing, power supply, network transceivers.
 - C. Operating system software, custom operating sequence software and application programs shall be stored in programmable, non-volatile memory.
 - D. An NLC shall operate totally stand-alone and independent of a central computer for all specified control applications. Software shall include a complete operating system (OS), communications handler, point processing, standard control algorithms, and specific control sequences.
 - E. NLCs shall include a battery backed hardware calendar/clock device.
 - F. NLC packaging shall be such that complete installation and checkout of field wiring can be performed prior to the installation of electronic boards. The complete NLC including power
 - G. supplies, etc., wired and housed in a NEMA 1 enclosure or as required by the location and local code requirements.
 - H. The NLC LonWorks® network interface shall be a Type 1 transceiver. A communication connection shall be provided for attaching POT to node for downloading and troubleshooting applications.
 - I. The NLC shall provide for a RS232 PC connection.
 - II. The NLC shall provide for a connection to a local digital display unit. Local display shall be provided if possible for all Air Handling Unit, Hot Water Plant and Chilled Water Plant controllers.
 - III. NLCs shall include:
 - a. Network service pin.
 - b. Power On indicator light.
 - c. Network communication indicator light.
 - IV. Input/Output Requirements
 - V. Binary Input (BI) Types Supported by the NLC:
 - a. The BI function shall accept on-off, open-close, or other change of state (two state data) indications.
 - VI. Analog inputs shall include, 0-10 Vdc, 0-20 mA, 4-20 mA, and 1800 ohm (25° C) or 10,000 ohm (25° C) thermistors. Resolution of the Analog to Digital converter shall be a minimum of 10 bits.
 - VII. NLCs shall include universal inputs that support either of the above describe inputs.
 - VIII. The NLC shall accommodate both binary and true analog outputs, 0-10Vdc. The resolution of the digital to analog converter shall be a minimum of 8 bits.
 - IX. Binary outputs shall be capable of handling maintained as well as pulsed outputs for momentary or magnetic latching circuits.
 - X. The NLC shall accommodate expansion input/output units.

- XI. Enclosure shall be NEMA 1.
- XII. The NLC shall include all hardware and software required for communications with other nodes, PCs, and the OW over the LonWorks® LANs.
- XIII. Provide with each controller the LonWorks configuration information including neuron ID address, controller configuration type, LMNL, file, etc. to integrate the controller into the FMCS.

2.13. Unitary Controllers

- A. Unitary Controllers (UC) shall be fully programmable or applications specific controllers with pre- packaged operating sequences maintained in EEPROM or flash ROM. Customization of applications specific controllers shall be possible to the extent that variable operating parameters, such as set points, control loop parameters, control constants, and schedules shall be changeable on-line through a standard web browser requiring no extra licensed software by the operator. UC shall be on the Automation Level LAN and shall provide an interface to the field instrumentation and final control elements of the equipment.
- B. The UC shall be a node on one of the Automation LANs and shall control its own communications so that the failure of any one node shall not inhibit communications on the network between the remaining nodes.
- C. UC shall be totally independent of other LAN nodes for their monitoring and control functions.
- D. Provide each UC with a battery back-up for the protection of volatile memory for a minimum of 72 hours. Batteries shall be rated for a seven year life.
- E. Provide a software clock at each UC. The system hardware real-time clock at the DCP shall be used to synchronize all other hardware and software clocks in the FMCS. Synchronization shall take place at least once every 24 hours. The clock shall have a battery back-up of at least 72 hours.
- F. All associated applications programs shall reside at the UC.
- G. Control shall be based on either three term algorithms, i.e. proportional plus integral plus derivative, or two term algorithms, i.e. proportional plus integral, unless specified otherwise.
- H. Provide with each controller the LonWorks configuration information including neuron ID address, controller configuration type, XIF file, etc. to integrate the controller into the FMCS.

2.14. Unitary Controller - Terminal Units

- A. Each terminal unit shall have a UC. The number and location of terminal units and air flow rates shall be as indicated on the Mechanical Drawings.
- B. The terminal unit manufacturer shall provide the following components for each fan powered terminal unit for interface and mounting of the UC:
 - I. Primary air dampers to be controlled by the UC.
 - II. Enclosure to house the UC and associated components or suitable mounting brackets within the terminal unit enclosure.
 - III. Multi-point averaging type flow sensor at the primary air inlet to the

- terminal unit.
- IV. 24 VAC control transformer.
- V. 24 VAC fan control relay interface.
- VI. 24 VAC heater control relay interface (up to two stages).
- C. The terminal unit manufacturer shall provide the following components for each cooling only VAV terminal unit for interface and mounting of the UC:
 - I. Primary air dampers to be controlled by the UC.
 - II. Enclosure to house the UC and associated components or suitable mounting brackets within the terminal unit enclosure.
 - III. Multi-point averaging type flow sensor at the primary air inlet to the terminal unit.
- D. The FMCS subcontractor shall furnish the terminal unit manufacturer the following components for factory installation for each terminal unit:
 - I. UC.
 - II. Damper actuator.
 - III. Hot Water Control Valve for terminal units equipped with hot water heating coils
- E. The FMCS subcontractor shall field install the following components for each terminal unit:
 - I. Room temperature sensor.
 - II. Discharge Air Temperature Sensor for terminal units.
- F. Provide as part of the UC differential pressure transducers for the monitoring of the terminal unit primary air flow rate.
- G. Furnish primary damper actuators, for factory mounting, meeting the following requirements:
 - I. Direct shaft mounting.
 - II. Adequate torque, 35 in. lbf. Minimum, to properly operate the damper from fully open to fully closed without binding.
 - III. Locking "V" groove or similar means to prevent slippage between actuator and shaft.
- H. The UC shall monitor and control the following parameters for fan powered terminal units:
 - I. Space temperature.
 - II. Primary air flow rate.
 - III. Damper modulation.
 - IV. Heating coil stage or Hot Water Valve control.
 - V. Fan on/off control.
 - VI. Discharge air temperature.
- I. The UC shall monitor and control the following parameters for VAV terminal

units:

- I. Space temperature.
 - II. Primary air flow rate.
 - III. Damper modulation.
 - IV. Heating coil stage or Hot Water Valve control
 - V. Discharge air temperature. PID algorithms shall maintain the system operation within + or - 1.0° F. of the space temperature set points.
- J. Following the installation of the terminal unit in the ceiling space the FMCS subcontractor shall undertake the following tasks:
- I. Physically connect the UC into the FMCS secondary LAN.
 - II. Install all data into the UC as necessary for the correct operation of the terminal unit.
 - III. Calibrate the instrumentation associated with the following monitored parameters:
 - a. Space temperature.
 - b. Primary air flow rate sensor.
 - c. Discharge Air Temperature
 - IV. Verify that the UC modulates the primary air duct dampers from fully open to fully closed and vice versa within the specified time and verify either visually or by feel that the damper closes fully under UC control.
 - V. Verify that each of the heating stages cycles on and off (as applicable).
 - VI. Verify that the UC modulates the Hot Water control valve from fully open to fully closed and vice versa.
 - VII. Verify that the terminal unit-UC is satisfactorily integrated into the LAN.
 - VIII. Verify that the operating sequences are correct and that there is stable modulation of the primary air damper and staging of the heat.
 - IX. Assist the Air Balancing subcontractor as required for the complete commissioning, calibration and operational verification of the HVAC and terminal unit systems.

PART 3. EXECUTION

3.1. Mandatory Points List/Point Names

- A. Many monitor and control points listed may not be necessary to execute the specified sequence but are useful for future sequence modifications, building control loop tuning, energy consumption analysis, FMCS operator and O&M troubleshooting.
- B. Equipment interfaces are acceptable for providing information but each piece of equipment (including but not limited to chillers, vfds, unitary equipment, etc.) shall have a hard-wired point for start/stop. All AHU's (not including FCU's, UV's UH's, standalone or packaged DX equipment), chillers and boilers shall have upgraded relays with HOA switches.
- C. All Points added by Engineer and/or Control Contractor needed for the sequences shall be identified in the Submittals and Project Record Documents.
- D. The original database names/points must be preserved and unchanged. This is to preserve original programming and bindings. The original database names are to be displayed when a mouse cursor hovers over the graphic/display name.
- E. Graphic/display names should be consistent throughout entire buildings and jobs.
- F. All points, even if not shown, that are required to complete sequence of operations shall be provided.

| | NAME | READABLE | UNITS |
|--|-----------|----------|----------|
| VAV AHU | | | |
| Occupied Command | OCC_CMD | RW | - |
| Chilled Water Valve | CHWV_POS | RW | % |
| Hot Water Valve | HWV_POS | RW | % |
| Outside Air Damper | OAD_POS | RW | % |
| Supply Air Fan Command | SAF_CMD | RW | - |
| Supply Air Fan Speed | SAF_SPD | RW | % |
| Supply Air Fan Run Indication | SAF_RI | RW | - |
| Supply Air Temp | SA_T | RW | °F |
| Return Air Temp | RA_T | RO | °F |
| Return Air CO2 | RA_CO2 | RO | ppm |
| Mixed Air Temp | MA_T | RO | °F |
| Supply Air Static Pressure | SA_PS | RO | In water |
| Hand-Off-Auto | HOA | RW | - |
| Supply Air Temp Low Setpoint | SA_T_LSP | RW | °F |
| Supply Air Temp High Setpoint | SA_T_HSP | RW | °F |
| Supply Air Static Low Pressure Setpoint | SA_PS_LSP | RW | In water |
| Supply Air Static High Pressure Setpoint | SA_PS_HSP | RW | In water |
| Supply Air High Static Switch | SA_HSS | RO | - |
| Temperature Low Limit Alarm | TLL_ALM | RO | - |

| | NAME | READABLE | UNITS |
|-------------------------------------|---------------|----------|-------|
| CO2 Setpoint | CO2_SP | RW | ppm |
| Outside Air Min Setpoint | OAD_MIN_POS | RW | % |
| Outside Air Max Setpoint | OAD_MAX_POS | RW | % |
| Economizer OA Lower Limit | OA_ECONO_LOW | RW | °F |
| Economizer OA Upper Limit | OA_ECONO_UP | RW | °F |
| Morning Warmup OA Enable Setpoint | MRNG_WRM_OA_ | RW | °F |
| Morning Warmup RA Setpoint | MRNG_WRM_RA_S | RW | °F |
| Exhaust/Relief Fan Command | RAF_CMD | RW | - |
| Exhaust/Relief Fan Speed | RAF_SPD | RW | % |
| Exhaust/Relief Fan Run Indication | RAF RI | RW | - |
| Exhaust/ Relief Damper | RAD_POS | RW | % |
| CHWV/HWV Freeze Protection Position | FREEZE_POS | RW | % |
| | | | |
| | | | |
| <u>CV AHU</u> | | | |
| Occupied Command | OCC_CMD | RW | - |
| Chilled Water Valve | CHWV_POS | RW | % |
| Hot Water Valve | HWV_POS | RW | % |
| Outside Air Damper | OAD_POS | RW | % |
| Supply Air Fan Command | SAF_CMD | RW | - |
| Supply Air Fan Run Indication | SAF_RI | RW | - |
| Supply Air Temp | SA_T | RO | °F |
| Room Temp | R_T | RW | °F |
| Return Air Temp | RA_T | RO | °F |
| Return Air CO2 | RA_CO2 | RO | ppm |
| Mixed Air Temp | MA_T | RO | °F |
| Hand-Off-Auto | HOA | RW | - |
| Room Temp Cooling Setpoint | R_T_CSP | RW | °F |
| Room Temp Heating Setpoint | R_T_H | RW | °F |
| Temperature Low Limit Alarm | TLL_ALM | RO | - |
| CO2 Setpoint | CO2_SP | RW | ppm |
| Outside Air Min Setpoint | OAD_MIN_POS | RW | % |
| Outside Air Max Setpoint | OAD_MAX_POS | RW | % |

| | NAME | READABLE | UNITS |
|-------------------------------------|------------------|----------|-------|
| Economizer OA Lower Limit | OA_ECONO_LOW | RW | °F |
| Economizer OA Upper Limit | OA_ECONO_UP | RW | °F |
| Exhaust/Relief Fan Command | RAF_CMD | RW | - |
| Exhaust/Relief Fan Speed | RAF_SPD | RW | % |
| Exhaust/Relief Fan Run Indication | RAF_RI | RW | - |
| Exhaust/ Relief Damper | RAD_POS | RW | % |
| CHWV/HWV Freeze Protection Position | FREEZE_POS | RW | % |
| | | | |
| | | | |
| <u>VAV Box</u> | | | |
| Space Temp | R | RO | °F |
| Effective Occupancy | nvooccpncystal | RO | °F |
| Space Temp (input) | nvispacetemp | RW | °F |
| Occupancy Command | nviocccmd | RW | °F |
| Cooling Setpoint | nvisetpoint | RW | °F |
| Effective Setpoint | nvoeffectsetpt | RO | °F |
| Setpoint Offset | nvistpointoffset | RW | °F |
| Terminal Load | nvoterminalload | RO | % |
| Fan Status | nvounitstatus | RO | - |
| Box Flow | nvoboxflow | RO | cfm |
| Box Flow (input) | nviboxflow | RO | cfm |
| Box Flow Setpoint | nvoflowcontrol | RW | cfm |
| Damper Position | nvomotorposition | RO | % |
| Supply Air Temp | SA_T | RO | °F |
| | | | |
| <u>RTU/DX Split System</u> | | | |
| Discharge Air Temp | DA_T | RO | °F |
| Fan Status | SAF_RI | RO | - |
| Space Temp | SP_T | RO | °F |
| | | | |
| <u>CHW SYS</u> | | | |
| Occupied Command | OCC_CMD | RW | - |
| Chilled Water Pump 1 Run Indication | CHWP1_RI | RO | - |

| | NAME | READABLE | UNITS |
|---------------------------------------|------------|----------|-------|
| Chiller 1 Command | CH1_CMD | RO | - |
| Chiller 1 Run Indication | CH1_RI | RO | - |
| Chilled Wtr. Supply Temp | CHWS_T | RO | °F |
| Chilled Wtr. Return Temp | CHWR_T | RO | °F |
| Chiller 1 Hand-Off-Auto | CH1_HOA | RW | - |
| Chiller Alarm | CH1_ALM | RO | - |
| OAT Enable Setpoint | OAT_Enable | | |
| Freeze Protection Enable | FRZ_Enable | | |
| | | | |
| | | | |
| <u>CW SYS</u> | | | |
| Condenser Water Pump 1 Run Indication | CWP1_RI | RO | - |
| Condenser Water Supply Temp | CWS_T | RO | °F |
| Condenser Water Return Temp | CWR_T | RO | °F |
| | | | |
| | | | |
| <u>COOLING TOWER</u> | | | |
| Cooling Tower Fan Run Indication | CTF1_RI | RO | - |
| | | | |
| | | | |
| <u>STM SYS</u> | | | |
| Occupied Command | OCC_CMD | RW | - |
| | | | |
| | | | |
| Boiler 1 Command | B1_CMD | RO | - |
| Boiler 1 Run Indication | B1_RI | RO | - |
| Boiler 1 Hand-Off-Auto | B1_HOA | RW | - |
| OAT Enable Setpoint | OAT_Enable | | |
| Freeze Protection Enable | FRZ_Enable | | |
| | | | |
| | | | |
| <u>CAB UH</u> | | | |
| Room Temp | R_T | RW | °F |
| Room Temp Setpoint | R_T_SP | RW | °F |
| Steam Valve | STMV_POS | RW | % |
| Supply Fan Air Command | SAF_CMD | RW | - |
| Supply Fan Run Indicator | SAF_RI | RW | - |

| | NAME | READABLE | UNITS |
|------------------------------------|-----------------|----------|-------|
| <u>ECU/UV</u> | | | |
| Setpoint | nvisetpoint | RW | °F |
| Setpoint Offset | nvisetpntoffset | RW | °F |
| Discharge Air Temp | nvodischairtemp | RO | °F |
| Fan Status | nvounitstatus | RO | - |
| Effective Occupancy | nvoeffectoccup | RO | - |
| Effective Setpoint | nvoeffectsetpt | RO | °F |
| Space Temp | nvospacetemp | RO | °F |
| Terminal Load | nvoterminalload | RO | % |
| Unit Status | nvounitstatus | RO | - |
| Occupancy Command | nvimanocccmd | RW | - |
| <u>HW_SYS</u> | | | |
| Occupied Command | OCC_CMD | RW | - |
| Boiler 1 | B1_CMD | RO | - |
| Boiler 1 Run Indication | B1_RI | RO | - |
| Boiler 2 | B2_CMD | RO | - |
| Boiler 1 Run Indication | B2_RI | RO | - |
| Hot Water Pump 1 Command | HWP1_CMD | RO | °F |
| Hot Water Pump 1 Run Indication | HWP1_RI | RW | - |
| Hot Water Pump 2 Command | HWP2_CMD | RO | °F |
| Hot Water Pump 2 Run Indication | HWP2_RI | RW | - |
| Hot Water Supply Temp | HWS_T | RO | °F |
| Hot Water Supply Temp Setpoint | HWS_T_SP | RW | °F |
| OAT Enable Setpoint | OAT_Enable | | |
| Freeze Protection Enable | FRZ_Enable | | |
| <u>Geothermal Heat Pump</u> | | | |
| Setpoint | nvisetpoint | RW | °F |
| Setpoint Offset | nvisetpntoffset | RW | °F |
| Discharge Air Temp | nvodischairtemp | RO | °F |

| | NAME | READABLE | UNITS |
|--|-----------------|----------|-------|
| Fan Status | nvounitstatus | RO | - |
| Effective Occupancy | nvoeffectoccup | RO | - |
| Effective Setpoint | nvoeffectsetpt | RO | °F |
| Space Temp | nvospacetemp | RO | °F |
| Terminal Load | nvoterminalload | RO | % |
| Unit Status | nvounitstatus | RO | - |
| Occupancy Command | nvimanocccmd | RW | - |
| Reversing Valve | nvoRevV | RO | - |
| Note:WSHP condenser water pumps that serve more than one WSHP to be same as condenser water pump for | | | |

- G. The following are sequences of operations which will be accomplished by the FMCS. Coordinate with Owner in operating equipment to maximize comfort and economy. All points required to accomplish the sequences will be provided and connected to the FMCS.

3.2. Sequence of Operations, Scheduling and Trending

- A. The current systems will maintain their existing sequences of operation. If the FMCS contractor decides to disband the LNS database, then any global functions must be replaced in the JACE so that all current functions are operational upon completion.
- B. Central Plant, Auditorium, Gymnasium, Cafeteria and Administration units are to have individual time schedules. The units for the remainder of the system are to be incorporated into one schedule.
- C. Temperature point trending is to take place every 15 minutes and kept in history for two weeks. Change of states, such as fans and pumps, are to be done in the same manner.

3.3. Recommended Sequence of Operation (Engineer to Edit "A" Through "O" Below, as Required)

A. Sequence Of Operation - Hot Water System

I. System Off - When the system is off:

- a. The hot water pumps shall be off.
- b. The boiler units shall be disabled.
- c. All control loops shall be disabled.

II. Initiation of System Start-Up - The system shall be started:

- a. By an operator manually entered command at the FMCS.
- b. Automatically when there is a requirement for the hot water at any of the AHUs after an operator defined time delay.

- III. System Operation - When system start-up has been initiated, the following sequences shall be implemented:
- a. The FMCS shall enable the hot water system through boiler sequencer. Sequencer shall stage boilers as needed.
 - b. The lead boiler and boiler feed pump and lead heating water pump shall be enabled and the boiler unit shall start under control of the unit mounted control panel.
 - c. The lead heating water pump shall be modulated by its VFD to maintain the pressure setpoint at the location of the most remote heating load. The lag pump shall be enabled as required to satisfy the pressure setpoint. When both pumps are enabled, the pumps shall be modulated by their VFD to operate at the same speed and satisfy the pressure setpoint.
 - d. As required to meet the heating load, the lag boilers and boiler feed pumps shall be automatically enabled and the boilers shall start under control of the unit mounted control panel.
 - e. All boilers and heating water pumps shall be rotated as lead and lag to equalize the run time of the equipment.
 - f. Boilers and heating water pumps shall be automatically disabled in reverse of the enable sequence as dictated by heating system load requirements.
 - g. Sequencer shall provide a linear setpoint reset schedule based on outside air temperature in accordance with the following:

| | | |
|---------------------------------------|--------|--------|
| Outside Air Temperature | 40 °F | 70 °F |
| Hot water supply temperature setpoint | 180 °F | 130 °F |

- h. Setpoints - The setpoints for the system shall be determined as follows:
 - i. The hot water supply temperature setpoint shall be initially set to 180 Deg. F.
- i. Initiation of System Shutdown - System shutdown shall be initiated:
 - i. By operator entered manual command.
 - ii. Automatically by the FMCS based on a time schedule basis.
- j. Alarms - The FMCS shall generate an alarm:
 - i. If a boiler is operating without an associate pump operating and vice versa.
 - ii. If the hot water supply temperature is outside the operator established low and high alarm limits,

which shall be initially set at + of - 3 deg F around the current set point.

- k. Failure positions - When a FMCS component failure occurs:
 - i. Pump shall remain at the last commanded state.
 - ii. Boiler shall remain at the last commanded state.
 - iii. If any operating pump or boiler fails, the units shall be disabled and the standby pumps and/or boilers shall operate without any time delays.
- B. Sequence Of Operation - VAV Air Handling Units (With VFD) and Outside Air Economizer
- I. System Off -When the system is off:
 - a. All the fans shall be off.
 - b. The heating coil valve shall be 30%.
 - c. The cooling coil valve shall be 30%.
 - d. The outside air damper shall be closed.
 - e. All control loops shall be disabled.
 - II. Initiation of System Start-Up - System start-up shall be initiated:
 - a. By an operator manually entered command at the FMCS.
 - b. Automatically by the FMCS based on optimal start, night setup, time schedule, restart following a fire alarm, or restart following a power failure.
 - III. Occupancy: Valid Occupancy modes shall be:
 - a. Occupied: Normal operating mode for occupied spaces or daytime operation. When the unit is in the occupied mode the unit shall maintain the discharge air temperature at the active discharge heating or cooling setpoint. The occupied mode shall be the default mode of the unit.
 - b. Unoccupied: Normal operating mode for unoccupied spaces or nighttime operation. When the space temperatures in the spaces served are off the heating or cooling unoccupied temperature setpoints plus/minus an offset the unit shall start the fan and enable the primary heating or cooling capacities to maintain the discharge air temperature at the active discharge air temperature setpoint. The outside Air damper shall remain closed, unless economizing.
 - i. Unoccupied Cooling Setpoint: 85°F
 - ii. Unoccupied Heating Setpoint: 55°F
 - c. Occupied Bypass: Mode used to temporarily place the unit into the occupied operation. The Occupied Bypass mode can be enabled from the local display, via a communicated value or hardwired from the space sensor. When a space sensor is available tenants shall be able to override the unoccupied mode locally. The override shall last for a

maximum of 4 hours (configurable). The tenants shall be able to cancel the override from the space sensor at any time. During the override the unit shall run in occupied mode.

- IV. Heat/Cool Mode - In standalone or auto mode the unit shall automatically determine the Heat/Cool mode by transitioning between morning warmup, cooldown or normal operation.
- V. Cooling Operation - When the unit is in cooling mode, the unit shall maintain the discharge temperature at the active discharge cooling setpoint. Based on the unit occupancy mode, the active discharge cooling setpoint shall be:
 - a. Occupied Discharge Air Cooling Setpoint: 55°F - 59°F based on an outside air temperature reset.
 - b. Unoccupied Discharge Air Cooling Setpoint: 55°F - 59°F based on an outside air temperature reset.
- VI. The unit shall use the active discharge air temperature cooling setpoint and the discharge air temperature to determine the requested cooling capacity of the unit (0-100%). The outputs shall be controlled based on the unit configuration and the requested cooling capacity.
- VII. Heating Operation - When the unit is in heating mode or morning warmup, the unit shall maintain the discharge air temperature at the active discharge air heating setpoint. Based on the unit occupancy mode, the active heating setpoint shall be:
 - a. Occupied Discharge Air Heating Setpoint: 90°F
 - b. Unoccupied Discharge Air Heating Setpoint: 90°F
- VIII. The unit shall use the active discharge air temperature heating setpoint and the discharge air temperature to determine the requested heating capacity of the unit (0-100%). The outputs shall be controlled based on the unit configuration and the requested heating capacity.
- IX. The discharge heating and cooling setpoints shall be limited by adjustable parameters in the unit to prevent them from being set too low or too high.

| Setpoint | Default Value |
|--|---------------|
| Maximum Discharge Air Cooling Setpoint | 59°F |
| Minimum Discharge Air Cooling Setpoint | 55°F |
| Maximum Discharge Air Heating Setpoint | 100°F |
| Minimum Discharge Air Heating Setpoint | 85°F |

- X. Transition from Unoccupied to Occupied - When the unit transitions from unoccupied mode to the occupied mode, morning warm-up routine shall be activated.
 - a. Morning Warm-Up - When unit is occupied and return air temperature is below 65°F (adj.) or more the occupied heating setpoint and morning warm-up sequence shall be

activated. During warm-up the fan shall be turned on, the outside air damper shall remain closed, and the heating capacity shall be controlled to the discharge heating setpoint. When the return air temperature reaches the morning warmup return air temperature setpoint the unit shall operate in occupied mode.

- b. Pre-Cool mode is communicated only- During Pre-Cool, the fan shall be turned on, the outside air damper shall remain closed, and the cooling capacity shall be controlled to the discharge cooling setpoint.
- XI. VAV Supply Fan Operation: The unit shall always maintain duct static setpoint in all modes of operating with the fan on. When the fan is on the unit shall read and compare the duct static pressure input to the duct static pressure setpoint and adjust the supply fan speed accordingly. A duct static pressure reset algorithm shall be used. Static pressure must be placed down the supply duct run where pressure setpoint cannot exceed 1.2 inches w.c.
- XII. VAV Return/Exhaust Fan Operation: The unit shall always maintain building pressure setpoint in all modes of operating with the fan on. When the fan is on the unit shall read and compare the building pressure input to the building pressure setpoint and adjust the return/exhaust fan speed accordingly. The return/exhaust fan shall be controlled to maintain a positive building pressure setpoint of .08" wg (adjustable) above atmospheric pressure.
- XIII. Hydronic Cooling Valve Control- If the unit is in the cooling mode the unit shall modulate the cooling valve to maintain the discharge air temperature at the active discharge air temperature setpoint. If the economizer function is enabled and the outside air damper is not fully open the cooling valve shall be closed. If economizer is unable to maintain discharge air setpoint, cooling valve shall open to meet cooling demand. The cooling valve shall be at 30% open if the fan is off.
- XIV. Hydronic Heating Valve Control- If the unit is in the heating mode, the unit shall modulate the hydronic heating valve to maintain the discharge air temperature at the active discharge air temperature setpoint. The heating valve shall be at 30% open if the fan is off.
- XV. Outside Air Damper Control - During all occupied modes the outside air damper shall be controlled to the effective minimum adjustable position, unless the economizing mode is active. The outside air damper shall be closed during the unoccupied mode, morning warm-up and pre-cool modes or when the outside air temperature falls below a Low Ambient Damper Lockout Setpoint [38°F], operator adjustable. Control outside air supply rate using a carbon-dioxide based demand ventilation control strategy. The outside air and return air dampers shall modulate to provide ventilation CFM to maintain CO2 levels in the spaces. The outside air damper shall be initially set at the minimum position. The dampers shall incrementally increase/decrease to maintain CO2 levels. The FMCS shall monitor CO2 levels in the return air duct. Upon CO2 value rising above 1100 ppm, the outside air damper shall modulate open from the normal

position to maintain the CO2 level at 1100 ppm. Once CO2 values fall below set point (1100 ppm), the outside air CFM shall return to its minimum position.

- XVI. Economizer Control - The unit shall allow economizer during all occupied and unoccupied modes. The modulating outdoor air damper shall provide the first source of cooling. The unit shall enable economizer mode if the outside air temperature is between 55°F-65°F, operator configurable. If economizer is initiated, the unit shall modulate the outside air damper between the active minimum position and fully open and shall modulate the mixed air damper between fully open and fully closed to maintain the discharge air temperature at the active discharge air temperature setpoint. If a hardwired outdoor air temperature sensor or a communicated value is not present, economizing shall not be allowed.
 - XVII. Exhaust Air Control - The unit shall coordinate the exhaust function with the return fan and mixed air damper. The exhaust output shall be energized whenever the supply fan is on and the outdoor air damper open beyond the exhaust fan/damper enable setpoint [30%], operator configurable. The exhaust output shall remain energized until the outdoor air damper closes to below 10% (adjustable) of the exhaust damper enable setpoint and or the supply fan is turned off.
- C. Sequence of Operation - Constant Volume Air Handling Unit (Heating/Cooling) with Outside Air Economizer
- I. System Off - When the system is off:
 - a. All the fans shall be off.
 - b. The heating coil valve shall be 30%.
 - c. The cooling coil valve shall be 30%.
 - d. The outside air damper shall be closed.
 - e. All control loops shall be disabled.
 - II. Initiation of System Start-Up - System start-up shall be initiated:
 - a. By an operator manually entered command at the FMCSFMCS.
 - b. Automatically by the FMCS based on optimal start, night setup, time schedule, restart following a fire alarm, or restart following a power failure.
 - III. System Operation - When system start-up has been initiated, the following sequences shall be implemented:
 - a. The supply air fan shall start.
 - b. The heating coil valve shall be controlled to maintain the heating space temperature setpoint.
 - c. The cooling coil valve shall be controlled to maintain the cooling space temperature setpoint.
 - IV. Return/Exhaust Fan Operation: The unit shall always maintain space pressure setpoint in all modes of operating with the fan on. When the

fan is on the unit shall read and compare the space pressure input to the space pressure setpoint and adjust the return/exhaust fan speed accordingly. The return/exhaust fan shall be controlled to maintain a positive building pressure setpoint of .08" wg (adjustable) above atmospheric pressure.

- V. Outside Air Damper Control - During all occupied modes the outside air damper shall be controlled to the effective minimum adjustable position, unless the economizing mode is active. The outside air damper shall be closed during the unoccupied mode, morning warm-up and pre-cool modes or when the outside air temperature falls below a Low Ambient Damper Lockout Setpoint [38°F], operator adjustable. Control outside air supply rate using a carbon-dioxide based demand ventilation control strategy. The outside air and return air dampers shall modulate to provide ventilation CFM to maintain CO2 levels in the spaces. The outside air damper shall be initially set at the minimum position. The dampers shall incrementally increase/decrease to maintain CO2 levels. The FMCS shall monitor CO2 levels in the return air duct. Upon CO2 value rising above 1100 ppm, the outside air damper shall modulate open from the normal position to maintain the CO2 level at 1100 ppm. Once CO2 values fall below set point (1100 ppm), the outside air CFM shall return to its minimum position.
- VI. Economizer Control - The unit shall allow economizing during all occupied and unoccupied modes. The modulating outdoor air damper shall provide the first source of cooling. The unit shall enable economizer mode if the outside air temperature is between 55°F-65°F, operator configurable. If economizer is initiated, the unit shall modulate the outside air damper between the active minimum position and fully open and shall modulate the mixed air damper between fully open and fully closed to maintain the discharge air temperature at the active discharge air temperature setpoint. If a hardwired outdoor air temperature sensor or a communicated value is not present, economizing shall not be allowed.
- VII. Exhaust Air Control - The unit shall coordinate the exhaust function with the return fan and mixed air damper. The exhaust output shall be energized whenever the supply fan is on and the outdoor air damper open beyond the exhaust fan/damper enable setpoint [30%], operator configurable. The exhaust output shall remain energized until the outdoor air damper closes to below 10% (adjustable) of the exhaust damper enable setpoint and or the supply fan is turned off.
- VIII. Setpoints - The system shall have the following setpoints:
 - a. Space temperature setpoint shall be 70 Deg. F. for heating and 74 °F for cooling.
 - b. Freezestat setpoint shall be set at the device for 35 Deg. F.
- IX. Initiation of System Shutdown - System shutdown shall be initiated:
 - a. By operator entered manual command.
 - b. Automatically by the FMCS base on time schedule or optimal stop.

- c. By the fire alarm system. The FMCS shall automatically set the control relay to the off state.
- D. Sequence of Operation - Single Zone Packaged DX Rooftop Units And Split Systems (All Sizes)
 - I. Unit shall have a sensor with LCD display capable of occupancy and setpoint override. Controller must be able to notify owner that economizer mode has failed.
- E. Sequence of Operation – Variable Air Volume Box With Supplemental Heat
 - I. System Off - When the system is off:
 - a. The heating coil valve shall be closed.
 - b. All control loops shall be disabled.
 - II. Initiation of System Start-Up - System start-up shall be initiated:
 - a. By an operator manually entered command at the FMCSFMCS.
 - b. Automatically by the FMCS based on optimal start, night setup, time schedule, restart following a fire alarm, or restart following a power failure.
 - c. By Occupied Bypass: Mode used to temporarily place the unit into the occupied operation. The Occupied Bypass mode can be enabled from the local display, via a communicated value or hardwired from the space sensor. When a space sensor is available tenants shall be able to override the unoccupied mode locally. The override shall last for a maximum of 4 hours (configurable). The tenants shall be able to cancel the override from the space sensor at any time. During the override the unit shall run in occupied mode.
 - III. System Operation - When system start-up has been initiated, the following sequences shall be implemented:
 - a. The supply air damper and heating coil valve shall be controlled to maintain the space temperature setpoint.
 - IV. Setpoints - The system shall have the following setpoints:
 - a. Space temperature setpoint shall be 70 °F for heating and 74 °F for cooling.
 - V. Initiation of System Shutdown - System shutdown shall be initiated:
 - a. By operator entered manual command.
 - b. Automatically by the FMCS base on time schedule or optimal stop.
- F. Sequence Of Operation - Freeze Protection
 - I. Chilled Water System: When outside air temperature is below 35 °F (adjustable setpoint). The chilled water pump will start and run continuously through a County installed device (standalone
 - II. Mechanical thermostat). If the County installed device is not present then the FMCS Contractor shall enable the chilled water pump when

the temperature is below 35°F. The FMCS Contractor shall open all chilled water valves to 30%. All valves must FAIL OPEN with loss of controller power.

- III. Hot Water Heating System: When outside air temperature is below 38 °F (adjustable setpoint), the hot water system will be enabled to Occupied or Night Setback mode outside of normal time schedule.
 - IV. The hot water system will transfer to occupied heating mode during regular time schedule regardless if outside air temperature is below or above the 38 °F adjustable set point. The FMCS Contractor shall open all hot water or steam valves to 30%. All valves must FAIL OPEN with loss of controller power.
- G. Sequence of Operation – Relief Fans
 - I. Each relief fan shall be controlled by the FMCS to maintain a positive building pressure setpoint of .08” wg (adjustable) above atmospheric pressure.
 - H. Sequence of Operation – Electrical Room Exhaust Fans
 - I. Electrical room exhaust fan shall be on when temperature inside the electrical room is above 80 °F.
 - I. Sequence of Operation – Crawl Space Ventilation Fans
 - I. Each crawl space supply and/or exhaust fan shall be on and run continuously when enthalpy is above 30 BTU/lb, operator adjustable.
 - J. Sequence of Operation – Restroom Exhaust Fans
 - I. Each restroom exhaust fan will be controlled by a motion sensor. A keyed override switch will also be provided. These exhaust fans are not integrated into the FMCS.
 - K. Sequence of Operation – Science Lab Exhaust Fans
 - I. The lab's Master Shut-Off Control Unit will turn the exhaust fan off. These exhaust fans are not integrated into the FMCS.
 - L. Sequence of Operation – Science Lab Prep Room Exhaust Fans
 - I. Each Science Lab Prep Room exhaust fan will run continuously. These exhaust fans are not integrated into the FMCS.
 - M. Software Interfaces Between The FMCS And Other Systems
 - I. All equipment with interface capabilities shall be equipped with a hardwired point for start/stop through a relay.
 - a. Provide a software interface to the chillers for monitoring purposes only. Chiller enable shall be accomplished through a hardwired point through a relay. Provide a LonWorks interface between the FMCS and the chiller controller units. Monitor up to 30 points per interface and make available for display on graphics through a FMCS matrix.
 - b. Provide a software interface to Variable Frequency Drives on pumps for monitoring purposes only. VFDs shall be hardwired for start/stop, run indication, speed command and

alarm. Start/stop shall be hardwired through a relay. Monitor up to 10 additional points per interface and make available for display on graphics through a FMCS matrix.

- N. Sequence of Operation – Single Zone, Chilled Water/ Hot Water Central Station Variable Air Volume Air Handling Unit
- I. System Off - When the system is off:
 - a. All the fans shall be off.
 - b. The heating coil valve shall be 30%.
 - c. The cooling coil valve shall be 30%.
 - d. The outside air damper shall be closed.
 - e. All control loops shall be disabled.
 - II. Initiation of System Start-Up - System start-up shall be initiated:
 - a. By an operator manually entered command at the FMCS/FMCS.
 - b. Automatically by the FMCS based on optimal start, night setup, time schedule, restart following a fire alarm, or restart following a power failure.
 - III. System Operation - When system start-up has been initiated, the following sequences shall be implemented:
 - a. The supply air fan shall start.
 - b. The heating coil valve shall be controlled to maintain the heating space temperature setpoint.
 - c. The cooling coil valve shall be controlled to maintain the cooling space temperature setpoint.
 - IV. Return/Exhaust Fan Operation: The unit shall always maintain space pressure setpoint in all modes of operating with the fan on. When the fan is on the unit shall read and compare the space pressure input to the space pressure setpoint and adjust the return/exhaust fan speed accordingly. The return/exhaust fan shall be controlled to maintain a positive building pressure setpoint of .08" wg (adjustable) above atmospheric pressure.
 - V. Outside Air Damper Control - During all occupied modes the outside air damper shall be controlled to the effective minimum adjustable position, unless the economizing mode is active. The outside air damper shall be closed during the unoccupied mode, morning warm-up and pre-cool modes or when the outside air temperature falls below a Low Ambient Damper Lockout Setpoint [38°F], operator adjustable. Control outside air supply rate using a carbon-dioxide based demand ventilation control strategy. The outside air and return air dampers shall modulate to provide ventilation CFM to maintain CO2 levels in the spaces. The outside air damper shall be initially set at the minimum position. The dampers shall incrementally increase/decrease to maintain CO2 levels. The FMCS shall monitor CO2 levels in the return air duct. Upon CO2 value rising above 1100 ppm, the outside air damper shall modulate open from the normal

position to maintain the CO2 level at 1100 ppm. Once CO2 values fall below set point (1100 ppm), the outside air CFM shall return to its minimum position.

- VI. Economizer Control - The unit shall allow economizing during all occupied and unoccupied modes. The modulating outdoor air damper shall provide the first source of cooling. The unit shall enable economizer mode if the outside air temperature is between 55°F-65°F, operator configurable. If economizer is initiated, the unit shall modulate the outside air damper between the active minimum position and fully open and shall modulate the mixed air damper between fully open and fully closed to maintain the discharge air temperature at the active discharge air temperature setpoint. If a hardwired outdoor air temperature sensor or a communicated value is not present, economizing shall not be allowed.
- VII. Exhaust Air Control - The unit shall coordinate the exhaust function with the return fan and mixed air damper. The exhaust output shall be energized whenever the supply fan is on and the outdoor air damper open beyond the exhaust fan/damper enable setpoint [30%], operator configurable. The exhaust output shall remain energized until the outdoor air damper closes to below 10% (adjustable) of the exhaust damper enable setpoint and or the supply fan is turned off.
- VIII. Setpoints - The system shall have the following setpoints:
 - a. Space temperature setpoint shall be 70 °F for heating and 74 °F for cooling.
 - b. Freezestat setpoint shall be set at the device for 35 °F.
- IX. Initiation of System Shutdown - System shutdown shall be initiated:
 - a. By operator entered manual command.
 - b. Automatically by the FMCS base on time schedule or optimal stop.
 - c. By the fire alarm system. The FMCS shall automatically set the control relay to the off state.
- X. Temperature Control:
 - a. Warm-up Mode: The EMCS shall determine the required warm-up period based on the optimized start algorithm. When the unit is indexed to this mode, the unit fan shall run full speed, the hot water coil shall be modulated to maintain a supply air temperature of 90°F (adj.), the chilled water valves shall be closed to their coils, the return air damper shall be open to the return air and the outside air dampers shall be closed to the outside air. Once the space set point has been reached, the EMCS shall switch the unit to the occupied mode.
 - b. Cool-down Mode: The EMCS shall determine the required cool-down period based on the optimized start algorithm. When the unit is indexed to this mode, the unit fan shall run full speed, the chilled water valves shall be open to their coils, and the return air damper shall be open to the return

air and the outside air dampers shall be closed to the outside air. Once the set point has been reached, the EMCS shall switch to the occupied mode.

- c. Occupied Heating: The EMCS shall index the unit to the occupied mode based on the programmed occupancy schedule. During this mode, the unit supply air fan shall run full speed and the outside and return air dampers shall be positioned to their respective positions to maintain CO2 levels. The hot water coil shall modulate to maintain a leaving air temperature of 90°F (adj.).
- d. Occupied Cooling: The EMCS shall index the unit to the occupied mode based on the programmed occupancy schedule. During this mode, the unit supply air fan shall run continuously and the outside and return air dampers shall index to their respective positions to maintain CO2 levels. Whenever the supply air temperature rises above the set point of 55°F (adj.), the EMCS shall modulate the chilled water cooling coil valve open to the coil. As the supply temperature approaches the set point, the EMCS shall modulate the chilled water valve to maintain the set point supply air temperature. The variable frequency drive shall modulate fan speed to maintain space temperature set point. The variable frequency drive shall modulate between minimum and maximum CFM, with the minimum fan speed operating at 20Hz.
- e. Unoccupied Mode: The EMCS shall index the unit to the unoccupied mode based on the programmed occupancy schedule. During this mode, the unit outside air damper shall be fully closed and the supply fan shall cycle with the units heating and cooling modes. The DDC controller shall enable the heating or cooling as required to maintain the unoccupied heating and cooling set points of 55°F and 85°F, respectively. Upon a rise in space temperature above the unoccupied cooling set point, the supply air fan and the chilled water valve shall modulate to maintain the unoccupied space set point. On a drop in space temperature below the unoccupied heating set point, the supply air fan and hot water coil shall modulate to maintain the unoccupied space set point.
- f. Freeze Protection: When fan is off, all valves are to be at 30%.

O. Sequence Of Operation – Water Cooled Chillers With Standalone Cooling Tower Control

- I. System Off - When the system is off:
 - a. The chiller and condenser water pumps shall be OFF
 - b. The chillers shall be disabled.
 - c. The chiller isolation valves shall be closed.
 - d. All control loops shall be disabled.

- II. Initiation of System Start-Up - System start-up will be initiated by any of the following conditions:
 - a. By a FMCSFMCS operator manually entered command or FMCSFMCS Time Schedule.
 - b. Automatically by the FMCS based on time schedule and OAT adjustable setpoint integrated with FMCSFMCS.
- III. System Start-Up - When system start-up has been initiated, the following sequences will be implemented:
 - a. The lead and lag chiller shall be selected by one of the following operator selectable methods:
 - i. Operator selection of individual equipment.
 - ii. Run times to equalize equipment operations.
 - iii. FMCS lead and lag programming will determine which chiller to enable.
 - b. The chilled water isolation valve and condenser water isolation valve associated with the selected lead chiller shall open fully. Opening and closing valves shall be controlled by the selected chiller. The valve actuators shall be modulating type to provide slow opening and closing action.
 - c. Once flow has been proven through then the chiller shall start under control of its unit mounted controller.
 - d. The FMCS will enable second chiller based on Delta Temperature (DT) between chill water supply and chilled water return temperatures and lead chiller has been running for minimum of 45 minutes. Initial setting of DT setpoint will be 5 degrees.
 - e. The lag chiller water isolation valve and condenser water isolation valve associated with the lag chiller shall open fully. Opening and closing of valves shall be controlled by the selected chiller. The valve actuators shall be modulating type to provide slow opening and closing action.
 - f. The lag chiller shall start and run until DT is below the 5 degree DT setpoint the FMCS will disable the lag chiller, lag chiller will then stop controlling the associated valves and close. The FMCS shall provide adjustable off time of lag chiller operation. Initial setting of minimum OFF time is 60 minutes shall be set. The above sequence shall continue as needed for additional staging of chillers. The above sequence shall continue as needed for staging OFF of chillers.
 - g. Emergency Plant Shutdown Button (EPSB) will be hardwired in series with chiller enable point from FMCS. If the emergency plant shutdown button is activated, provide for an orderly shutdown of all the equipment within the central plant. Coordinate shutdown sequence of chillers with the chiller manufacturer.

- IV. Setpoints – The setpoints for the system shall be determine as follows:
 - a. The chilled water supply temperature setpoint shall be set initially at 44 Deg. F and controlled by chiller.
- V. Initiation of System Shutdown – System shutdown shall be initiated:
 - a. By FMCSFMCS operator entered manual command or Time Schedule.
 - b. Automatically by the FMCS/FMCS based on time schedule basis.
 - c. Local emergency power shut off switch is activated.
- VI. Alarm
 - a. Chiller Alarm
- VII. Failure positions - When a BMCS component or power failure occurs:
 - a. Pump(s) shall remain at the last commanded state.
 - b. Chiller shall remain at the last commanded state.
 - c. Valves shall remain at the last commanded position.

3.4. Training

- A. Upon completion of the work and at a time designated by the Owner, but before Warranty Commencement, provide a formal on-site training session for the Owner's operating personnel to include location, operation, and maintenance of all control equipment and systems per contract terms and conditions. This session will be video recorded and included in the closeout documents submitted to the Program Management Firm. Before proceeding with instruction, prepare a typed outline listing the subjects that will be covered. Submit the outline for review by the Architect/Engineer and the Owner representative.
- B. Documentation per Section 1.13 shall be provided to the Program Management Firm at or prior to training session. Deliver directly to Program Manager who will transmit to Dallas ISD Maintenance. Requirements of record documentation per 1.13 will still need to be issued as part of the closeout requirements

3.5. Coordination

- A. For construction project installations where electrical and mechanical contractors are responsible for their respective trade, the electrical contractor is to provide line voltage to required equipment and the mechanical contractor is to install any devices that are to be included in piping systems. It is the controls contractor responsibility to provide all devices with diagrams for location and coordinate with mechanical contractor prior to mechanical contractor starting installations. For installations where controls only, work is provided, all necessary work shall be performed by the controls contractor. Controls Contractor shall coordinate and provide all interface with smoke detectors and fire alarm.

3.6. Other Requirements

- A. Provide wiremold where wiring must run exposed. Obtain advance approval from Architect and Owner before running exposed. Coordinate with Owner and Architect.
- B. For all wiring, provide numbering on all terminations (both ends).
- C. Label all panels, cans, enclosures, and correlate with air conditioning units served. Labeling shall relate to shop drawings and equipment served. Provide wiring diagram inside each enclosure.
- D. Provide Owner with flash drive with graphic diagrams and drawings. Include map of County with County-owned buildings located and floor plan of each building with equipment located.
- E. This Contractor shall provide a Project Manager with a minimum of 3 years' experience with installation and set-up of the equipment of the Bidder/Manufacturer they represent.
- F. Locate outdoor air sensors shielded and on northern exposure.

3.7. Installation Requirements

- A. Any panels associated with the control system shall be furnished and installed under this section of the work. Panel wiring shall be terminated by connecting to numbered terminals strips. Wire nut connections shall not be allowed. All wiring shall be color coded and shall be tagged for future identification.
- B. Controls contractor shall install JACE controller(s) in MDF/IDF room. Contractor shall provide and route all data lines and cabling from JACE as required for an operational networked system.
- C. Unless otherwise specified, all devices, panels, etc., furnished and/or installed by the Contractor shall be located where they can be calibrated and maintained from the floor without use of a ladder. [JS33]These items shall be identified by means of plates made of plastic suitably engraved, embossed or punched, plastic tape will not be acceptable. At completion of job, the Contractor shall submit record drawings of any changes made during construction. This submittal shall be a condition of final payment.
- D. Any conduit on roof shall be absolute minimum and shall have prior written approval.
- E. All conduit used indoor and outdoor shall be metal and shall be of type and fittings to minimize corrosion and moisture entry.

3.8. Cable Installation and Attachments

- A. Control System wiring and equipment installation shall be in accordance with good engineering practices as established by the TIA/EIA and the NEC. Wiring shall meet all state and local electrical codes. All wiring shall test free from all grounds and shorts. All cable shall be supported from the building structure and bundled.
- B. The support system shall provide a protective pathway to eliminate stress that could damage the cabling. The cable shall not be crushed, deformed, skinned, crimped, twisted, or formed into tight radius bends that could compromise the integrity of the cabling. Controls cables shall not be run loose on ceiling grid or ceiling tiles. Support shall be provided by mounting

appropriate fasteners which may be loaded with multiple cables. Provided that the weight load is carried by the support rod or wire, the support assembly may attach to the ceiling grid for lateral stabilization. The required support wires for the ceiling grid or light fixtures shall not be utilized. Any fastener attached to the ceiling grid shall not interfere with inserting or removing ceiling tiles. All cabling and supports must be positioned at least 12 inches above the ceiling grid.

- C. Controls cables shall be run in bundles above accessible ceilings and supported from building structure. Cabling shall be loosely bundled with wire wraps randomly spaced at 30 to 48 inches on center, wire wraps shall not be tight enough to deform cabling and shall not be used to support the cabling.
- D. Attachments for cabling support shall be spaced at 48 to 60 inches on center. The cable bundle shall not be allowed to sag more than 12 inches mid-span between attachments. Attachments shall be sized as follows:

| | |
|--|---|
| Bundles up to 1/2" dia. (Ten 1/4" cables) | 1/2" bridle ring, Caddy #4BRT32 or equivalent |
| Bundles up to 3/4" dia. (Sixteen 1/4" cables) | 3/4" J-Hook, Caddy #CAT12 or equivalent |
| Bundles up to 1-5/16" dia. (Fifty 1/4" cables) | 1-5/16" J-Hook, Caddy #CAT21 or equivalent |
| Bundles up to 2" dia. (Eighty 1/4" cables) | 2" J-Hook, Caddy #CAT21 or equivalent Split |
| Bundles greater than 2" dia. or provide cable tray | |

- E. Do not mix different signal strength cables on the same J-Hook (i.e. fire alarm, 25 volt speaker cable). Multiple J-Hooks can be on the same attachment point up to the rated weight of the attachment device
- F. Controls cables shall be run in conduit stubs, where stubs are provided, from wall mounted devices to above accessible ceilings. Conduit shall be required only within walls and concealed spaces to provide access. Provide a plastic snap bushing or sleeve on the end of each conduit stub such as Thomas & Betts Catalog no. 443 - 3/4", 424 - 1", 425 - 1 1/4", 427 - 2" or equivalent.
- G. Conduit, duct or track shall be used for controls cable in exposed areas.
- H. All conduit, ducts, track and raceways shall be supported from the structure at industry standard intervals for the size specified, utilizing proper anchoring devices and techniques for each type of cable used.
- I. All penetrations through fire rated walls or floors shall feature a short length of metal conduit. The hole shall be neatly cut, not oversized or irregular. Seal the interior of the conduit sleeve around the cables and around the outside of the sleeve on each side of the penetration with fire- stop caulk or putty, such as Minnesota Mining & Mfg. Co. (3M) - CP 25WB+ caulk, MPS-2+ putty, or equivalent. Install according to the manufacturers' instructions.
- J. All cabling and equipment shall be located and installed as follows:
 - I. All cable shall have a label on both ends utilizing self-laminating, flexible vinyl film and non-smear nylon marking pens. Utilize Tyton Corporation Part No. RO175 Rite-On labels and Part No. FTP1 nylon

marking pens or equivalent.

- II. Each cable run shall include a three foot service loop with wire tie located in the ceiling above the control unit panel. This is to allow for future re-termination or repair.
 - III. No terminations or splices shall be installed in or above ceilings. Cable shall be continuous from one device termination to the next.
 - IV. Mount all equipment firmly in place. Route cable in a professional, neat and orderly installation.
 - V. All cabling shall be placed with regard to the environment, EMI/RFI (interference) and its effect on communication signal transmission.
 - VI. Do not route any controls cable within two feet of any light fixture, HVAC unit service access area, electric panel, or any device containing a motor or transformer.
 - VII. Low voltage controls cable will not be installed in the same conduit, duct or track with line voltage electrical cable.
 - VIII. Maximum pulling tension should not exceed 25 lb/ft. or manufactures recommendation, whichever is less.
 - IX. Any pulling compounds utilized must be approved by the cable manufacturer and shall not degrade the strength or electrical characteristics of the cable.
 - X. Cable bends shall not exceed the manufacturers' suggested bend radius.
 - XI. Provide for adequate ventilation in all equipment panels.
- K. Termination practices:
- I. Strip back only as much cable jacket as required to terminate.
 - II. Preserve wire twists as closely as possible to point of termination (0.5" maximum) to keep signal impairment to a minimum.
 - III. Avoid twisting cable during installation.

3.9. Programming

- A. Prior to completion of the control installation, schedule time with Owner's designated representatives to evaluate and select programming options and requirements. Contractor shall provide engineer for such meetings and consultations on an as-needed basis. Preparation time for the conference shall be in addition to the "in conference" time, and shall be provided on an as-needed basis without additional cost to the Owner.
- B. The Contractor shall also provide additional coordination as needed with the Owner's representative and Engineer to formulate and determine functions, reports, graphics, and alarms most desirable and suitable for the County and writing the software capability. Programming of these items shall be provided. The Contractor shall program the system using coordinated Owner provided schedules for time of day and holidays.
- C. No hardware change shall be required for program changes.

3.10. Commissioning

- A. The FMCS Contractor shall provide the following items as part of their scope of work to assist the Commissioning Authority (CxA).
- I. Fill out and sign completed construction and startup checklists that will be provided by the CxA for each type of HVAC system. Provide completed checklists to CxA.
 - II. Provide personnel to assist CxA in the verification of a sample of the checklists. This will include accompanying the CxA for onsite observation and providing access to the necessary programming and graphics during the testing.
 - III. Provide personnel to demonstrate that existing systems at the campus are correctly interfaced with the new system.
 - IV. Provide personnel to assist CxA in the resolution of deficiency items that are identified in the Issues Log as created by the CxA.
 - V. Provide personnel to assist CxA in the verification of a sample of the checklists. This will include accompanying the CxA for onsite observation and providing access to the necessary programming and graphics during the testing.
 - VI. Provide personnel to demonstrate that existing systems at the campus are correctly interfaced with the new system.
 - VII. Provide personnel to assist CxA in the resolution of deficiency items that are identified in the Issues Log as created by the CxA.

END OF SECTION 230924

SECTION 230923 - DIRECT DIGITAL CONTROL (DDC) SYSTEM FOR SMALL HVAC SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY/SCOPE

- A. Section Includes: Direct digital control (DDC) system for HVAC.

The scope of this specification will apply to buildings served by unitary DX air conditioning systems – both constant air volume systems and variable air volume systems. Examples of such buildings would be the OEM Building, the Wayne Johnson Community Center, the Agrilife Building, and the Eddie Janek West County Annex Building. This specification does not apply to larger buildings served by a central plant, ie. chillers, boilers, and a cooling tower.

1.2 OWNER CRITERIA

- A. The owner will evaluate each bidder on the following criteria:
1. Ability to control the system from a central location
 2. Ability to control the system from a smart phone or tablet
 3. Ability to have minimal end-user interaction (The owner prefers service calls over end-user adjustment)
 4. Secure log in or encrypted connection
 5. Ability to control constant volume and variable air volume unitary HVAC equipment and terminal boxes
 6. Ability to expand or remove units from the control system using in-house staff as opposed to an external technician.
 7. Simplicity of the system to change settings.
 8. Compatibility with existing equipment and future system flexibility (open protocol)
 9. Ability to integrate controls with the National Weather service to react to weather emergencies.

1.3 DEFINITIONS

- A. Algorithm: A logical procedure for solving a recurrent mathematical problem. A prescribed set of well-defined rules or processes for solving a problem in a finite number of steps.
- B. Analog: A continuously varying signal value, such as current, flow, pressure, or temperature.
- C. BACnet Specific Definitions:
1. BACnet: Building Automation Control Network Protocol, ASHRAE 135. A communications protocol allowing devices to communicate data and services over a network.
 2. BACnet Interoperability Building Blocks (BIBBs): BIBB defines a small portion of BACnet functionality that is needed to perform a particular task. BIBBs are combined to build the BACnet functional requirements for a device.
 3. BACnet/IP: Defines and allows using a reserved UDP socket to transmit BACnet messages over IP networks. A BACnet/IP network is a collection of one or more IP subnetworks that share the same BACnet network number.
 4. BACnet Testing Laboratories (BTL): Organization responsible for testing products for compliance with ASHRAE 135, operated under direction of BACnet International.

- D. Binary: Two-state signal where a high signal level represents "ON" or "OPEN" condition and a low signal level represents "OFF" or "CLOSED" condition. "Digital" is sometimes used interchangeably with "Binary" to indicate a two-state signal.
- E. Controller: Generic term for any standalone, microprocessor-based, digital controller residing on a network, used for local or global control. Three types of controllers are indicated: network controllers, programmable application controllers, and application-specific controllers.
- F. Control System Integrator: An entity that assists in expansion of existing enterprise system and support of additional operator interfaces to I/O being added to existing enterprise system.
- G. COV: Changes of value.
- H. DDC System Provider: Authorized representative of, and trained by, DDC system manufacturer and responsible for execution of DDC system Work indicated.
- I. Distributed Control: Processing of system data is decentralized and control decisions are made at subsystem level. System operational programs and information are provided to remote subsystems and status is reported back. On loss of communication, subsystems to be capable of operating in a standalone mode using the last best available data.
- J. E/P: Voltage to pneumatic.
- K. Gateway: Bidirectional protocol translator that connects control systems that use different communication protocols.
- L. HLC: Heavy load conditions.
- M. I/O: System through which information is received and transmitted. I/O refers to analog input (AI), binary input (BI), analog output (AO) and binary output (BO). Analog signals are continuous and represent control influences such as flow, level, moisture, pressure, and temperature. Binary signals convert electronic signals to digital pulses (values) and generally represent two-position operating and alarm status. "Digital," (DI) and (DO), is sometimes used interchangeably with "Binary," (BI) and (BO), respectively.
- N. I/P: Current to pneumatic.
- O. LAN: Local area network.
- P. LNS: LonWorks Network Services.
- Q. LON Specific Definitions:
 1. FTT-10: Echelon Transmitter-Free Topology Transceiver.
 2. LonMark International: Association comprising suppliers and installers of LonTalk products. Association provides guidelines for implementing LonTalk protocol to ensure interoperability through a standard or consistent implementation.
 3. LonTalk: An open standard protocol developed by Echelon Corporation that uses a "Neuron Chip" for communication. LonTalk is a register trademark of Echelon.
 4. LonWorks: Network technology developed by Echelon.
 5. Node: Device that communicates using CTA-709.1-D protocol and that is connected to a CTA-709.1-D network.
 6. Node Address: The logical address of a node on the network, consisting of a Domain number, Subnet number, and Node number. "Node number" portion of an address is a

- number assigned to device during installation, is unique within a subnet, and is not a factory-set unique Node ID.
7. Node ID: A unique 48-bit identifier assigned at factory to each CTA-709.1-D device. Sometimes called a "Neuron ID."
 8. Program ID: An identifier (number) stored in a device (usually, EEPROM) that identifies node manufacturer, functionality of device (application and sequence), transceiver used, and intended device usage.
 9. Standard Configuration Property Type (SCPT): Pronounced "skip-it." A standard format type maintained by LonMark for configuration properties.
 10. Standard Network Variable Type (SNVT): Pronounced "snivet." A standard format type maintained by LonMark used to define data information transmitted and received by individual nodes. "SNVT" is used in two ways. It is an acronym for "Standard Network Variable Type" and is often used to indicate a network variable itself (i.e., it can mean "a network variable of a standard network variable type").
 11. Subnet: Consists of a logical grouping of up to 127 nodes, where logical grouping is defined by node addressing. Each subnet is assigned a number, which is unique within a Domain. See "Node Address."
 12. TP/FT-10: Free Topology Twisted Pair network defined by CTA-709.3 and is most common media type for a CTA-709.1-D control network.
 13. TP/XF-1250: High-speed, 1.25 Mbps, twisted-pair, doubly terminated bus network defined by "LonMark Interoperability Guidelines" and typically used only to connect multiple TP/FT-10 networks.
 14. User-Defined Configuration Property Type (UCPT): Pronounced "u-keep-it." A Configuration Property format type that is defined by device manufacturer.
 15. User-Defined Network Variable Type (UNVT): Network variable format defined by device manufacturer. UNVTs create non-standard communications that other vendors' devices may not correctly interpret and may negatively impact system operation. UNVTs are not allowed.
- R. Low Voltage: As defined in NFPA 70 for circuits and equipment operating at less than 50 V or for remote-control, signaling power-limited circuits.
- S. Mobile Device: A data-enabled phone or tablet computer capable of connecting to a cellular data network and running a native control application or accessing a web interface.
- T. Modbus TCP/IP: An open protocol for exchange of process data.
- U. MS/TP: Master-slave/token-passing, ISO/IEC/IEEE 8802-3. Datalink protocol LAN option that uses twisted-pair wire for low-speed communication.
- V. MTBF: Mean time between failures.
- W. Network Controller: Digital controller, which supports a family of programmable application controllers and application-specific controllers, that communicates on peer-to-peer network for transmission of global data.
- X. Network Repeater: Device that receives data packet from one network and rebroadcasts it to another network. No routing information is added to protocol.
- Y. Peer to Peer: Networking architecture that treats all network stations as equal partners.
- Z. POT: Portable operator's terminal.
- AA. RAM: Random access memory.

- BB. RF: Radio frequency.
- CC. Router: Device connecting two or more networks at network layer.
- DD. Server: Computer used to maintain system configuration, historical and programming database.
- EE. TCP/IP: Transport control protocol/Internet protocol.
- FF. UPS: Uninterruptible power supply.
- GG. USB: Universal Serial Bus.
- HH. User Datagram Protocol (UDP): This protocol assumes that the IP is used as the underlying protocol.
- II. VAV: Variable air volume.
- JJ. WLED: White light emitting diode.

1.4 ACTION SUBMITTALS

A. Multiple Submissions:

1. If multiple submissions are required to execute work within schedule, first submit a coordinated schedule clearly defining intent of multiple submissions. Include a proposed date of each submission with a detailed description of submittal content to be included in each submission.
2. Clearly identify each submittal requirement indicated and in which submission the information will be provided.
3. Include an updated schedule in each subsequent submission with changes highlighted to easily track the changes made to previous submitted schedule.

B. Product Data:

1. Construction details, material descriptions, dimensions of individual components and profiles, and finishes.
2. Operating characteristics, electrical characteristics, and furnished accessories indicating process operating range, accuracy over range, control signal over range, default control signal with loss of power, calibration data specific to each unique application, electrical power requirements, and limitations of ambient operating environment, including temperature and humidity.
3. Product description with complete technical data, performance curves, and product specification sheets.
4. Installation, operation, and maintenance instructions including factors effecting performance.
5. Bill of materials of indicating quantity, manufacturer, and extended model number for each unique product.
6. The following are examples of products that should be included in the submittals:
 - a. Workstations.
 - b. Gateways.
 - c. Routers.
 - d. DDC controllers.
 - e. Enclosures.

- f. Electrical power devices.
 - g. UPS units.
 - h. Accessories.
 - i. Instruments.
 - j. Control dampers and actuators.
7. When manufacturer's product datasheets apply to a product series rather than a specific product model, clearly indicate and highlight only applicable information.
 8. Each submitted piece of product literature to clearly cross reference specification and drawings that submittal is to cover.

C. Software Submittal:

1. Cross-referenced listing of software to be loaded on each operator workstation, server, gateway, and DDC controller.
2. Description and technical data of all software provided and cross-referenced to products in which software will be installed.
3. Operating system software, operator interface and programming software, color graphic software, DDC controller software, maintenance management software, and third-party software.
4. Include a flow diagram and an outline of each subroutine that indicates each program variable name and units of measure.
5. Listing and description of each engineering equation used with reference source.
6. Listing and description of each constant used in engineering equations and a reference source to prove origin of each constant.
7. Description of operator interface to alphanumeric and graphic programming.
8. Description of each network communication protocol.
9. Description of system database, including all data included in database, database capacity, and limitations to expand database.
10. Description of each application program and device drivers to be generated, including specific information on data acquisition and control strategies showing their relationship to system timing, speed, processing burden, and system throughout.
11. Controlled Systems: Instrumentation list with element name, type of device, manufacturer, model number, and product data. Include written description of sequence of operation including schematic diagram.

D. Shop Drawings:

1. General Requirements:
 - a. Include cover drawing with Project name, location, Owner, Architect, Contractor, and issue date with each Shop Drawings submission.
 - b. Include a drawing index sheet listing each drawing number and title that matches information in each title block.
2. Include plans, elevations, sections, and mounting details where applicable.
3. Include details of product assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
4. Plan Drawings indicating the following:
 - a. Screened backgrounds of walls, structural grid lines, HVAC equipment, ductwork, and piping.
 - b. Room names and numbers with coordinated placement to avoid interference with control products indicated.

- c. Each desktop workstation network port, server, gateway, router, DDC controller, control panel instrument connecting to DDC controller, and damper connecting to DDC controller, if included in Project.
 - d. Location of products in rooms, ducts, and piping to reflect proposed installed condition.
 - e. Network communication cable and raceway routing.
5. Schematic drawings for each controlled HVAC system indicating the following:
- a. I/O points labeled with point names shown. Indicate instrument range, normal operating set points, and alarm set points. Indicate fail position of each damper and valve, if included in Project.
 - b. I/O listed in table format showing point name, type of device, manufacturer, model number, and cross-reference to product data sheet number.
 - c. A graphic showing location of control I/O in proper relationship to HVAC system.
 - d. Wiring diagram with each I/O point having a unique identification and indicating labels for all wiring terminals.
 - e. Unique identification of each I/O that to be consistently used between different drawings showing same point.
 - f. Elementary wiring diagrams of controls for HVAC equipment motor circuits including interlocks, switches, relays, and interface to DDC controllers.
 - g. Narrative sequence of operation.
 - h. Graphic sequence of operation, showing all inputs and output logical blocks.
6. Control panel drawings indicating the following:
- a. Panel dimensions, materials, size, and location of field cable, raceways, and tubing connections.
 - b. Interior subpanel layout showing all internal components, cabling and wiring raceways, nameplates, and allocated spare space.
 - c. Front, rear, and side elevations and nameplate legend.
7. DDC system network riser diagram indicating the following:
- a. Each device connected to network with unique identification for each.
 - b. Interconnection of each different network in DDC system.
 - c. For each network, indicate communication protocol, speed, and physical means of interconnecting network devices, such as copper cable type, or optical fiber cable type. Indicate raceway type and size for each.
 - d. Each network port for connection of an operator workstation or other type of operator interface with unique identification for each.
8. DDC system electrical power riser diagram indicating the following:
- a. Each point of connection to field power with requirements (volts/ phase// hertz/ amperes/ connection type) listed for each.
 - b. Each control power supply including, as applicable, transformers, power-line conditioners, transient voltage suppression and high filter noise units, DC power supplies, and UPS units with unique identification for each.
 - c. Each product requiring power with requirements (volts/ phase// hertz/ amperes/connection type) listed for each.
 - d. Power wiring type and size, race type, and size for each.
9. Monitoring and control signal diagrams indicating the following:

- a. Control signal cable and wiring between controllers and I/O.
- b. Point-to-point schematic wiring diagrams for each product.
- c. Control signal tubing to sensors, switches, and transmitters.
- d. Process signal tubing to sensors, switches, and transmitters.

10. Color graphics indicating the following:

- a. Itemized list of color graphic displays to be provided.
- b. For each display screen to be provided, a true color copy showing layout of pictures, graphics, and data displayed.
- c. Intended operator access between related hierarchical display screens.

E. System Description:

- 1. Full description of DDC system architecture, network configuration, operator interfaces and peripherals, servers, controller types and applications, gateways, routers and other network devices, and power supplies.
- 2. Complete listing and description of each report, log and trend for format and timing, and events that initiate generation.
- 3. System and product operation under each potential failure condition including, but not limited to, the following:
 - a. Loss of power.
 - b. Loss of network communication signal.
 - c. Loss of controller signals to inputs and outpoints.
 - d. Operator workstation failure.
 - e. Server failure.
 - f. Gateway failure.
 - g. Network failure.
 - h. Controller failure.
 - i. Instrument failure.
 - j. Control damper actuator failure.
- 4. Complete bibliography of documentation and media to be delivered to Owner.
- 5. Description of testing plans and procedures.
- 6. Description of Owner training.

F. Qualification Statements:

- 1. Systems Provider's Qualification Data:
 - a. Resume of project manager assigned to Project.
 - b. Resumes of application engineering staff assigned to Project.
 - c. Resumes of installation and programming technicians assigned to Project.
 - d. Resumes of service technicians assigned to Project.
 - e. Brief description of past project including physical address, floor area, number of floors, building system cooling and heating capacity, and building's primary function.
 - f. Description of past project DDC system, noting similarities to Project scope and complexity indicated.
 - g. Names of staff assigned to past project that will also be assigned to execute work of this Project.
 - h. Owner contact information for past project including name, phone number, and email address.
 - i. Contractor contact information for past project including name, phone number, and email address.

- j. Architect and Engineer contact information for past project including name, phone number, and email address.
 - 2. Manufacturer's qualification data.
 - 3. Testing agency's qualification data.
- G. Sample warranty.

1.5 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For DDC system.

1. In addition to items specified above, include the following:
 - a. Testing and commissioning reports and checklists of completed final versions of reports, checklists, and trend logs.
 - b. As-built versions of submittal Product Data.
 - c. Names, addresses, email addresses, and 24-hour telephone numbers of Installer and service representatives for DDC system and products.
 - d. Operator's manual with procedures for operating control systems including logging on and off, handling alarms, producing point reports, trending data, overriding computer control, and changing set points and variables.
 - e. Programming manuals with description of programming language and syntax, of statements for algorithms and calculations used, of point database creation and modification, of program creation and modification, and of editor use.
 - f. Engineering, installation, and maintenance manuals that explain how to do the following:
 - 1) Design and install new points, panels, and other hardware.
 - 2) Perform preventive maintenance and calibration.
 - 3) Debug hardware problems.
 - 4) Repair or replace hardware.
 - g. Documentation of all programs created using custom programming language including set points, tuning parameters, and object database.
 - h. Backup copy of graphic files, programs, and databases on electronic media.
 - i. List of recommended spare parts with part numbers and suppliers.
 - j. Complete original-issue documentation, installation, and maintenance information for furnished third-party hardware including computer equipment and sensors.
 - k. Complete original-issue copies of furnished software, including operating systems, custom programming language, operator workstation software, and graphics software.
 - l. Licenses, guarantees, and warranty documents.
 - m. Recommended preventive maintenance procedures for system components, including schedule of tasks such as inspection, cleaning, and calibration; time between tasks; and task descriptions.
 - n. Owner training materials.

1.6 QUALITY ASSURANCE

A. DDC System Manufacturer Qualifications:

1. Nationally recognized manufacturer of DDC systems and products.

2. DDC systems with similar requirements to those indicated for a continuous period of five years within time of bid.
 3. DDC systems and products that have been successfully tested and in use on at least five past projects.
 4. Having complete published catalog literature, installation, operation, and maintenance manuals for all products intended for use.
 5. Having full-time in-house employees for the following:
 - a. Product research and development.
 - b. Product and application engineering.
 - c. Product manufacturing, testing, and quality control.
 - d. Technical support for DDC system installation training, commissioning, and troubleshooting of installations.
 - e. Owner operator training.
- B. DDC System Provider Qualifications:
1. Authorized representative of, and trained by, DDC system manufacturer.
 2. Demonstrate past experience with installation of DDC system products being installed for period within five consecutive years before time of bid.
 3. Demonstrate past experience on five projects of similar complexity, scope, and value.
 4. Demonstrate past experience of each individual assigned to Project.
 5. Staffing resources of competent and experienced full-time employees that are assigned to execute work according to schedule.
 6. Service and maintenance staff assigned to support Project during warranty period.
 7. Product parts inventory to support ongoing DDC system operation for a period of not less than five years after Substantial Completion.
 8. DDC system manufacturer's backing to take over execution of the Work if necessary to comply with requirements indicated. Include Project-specific written letter, signed by manufacturer's corporate officer, if requested.

1.7 WARRANTY

- A. Special Warranty: Manufacturer and Installer agree to repair or replace products that fail in materials or workmanship within specified warranty period.
1. Adjust, repair, or replace failures at no additional cost or reduction in service to Owner.
 2. Include updates or upgrades to software and firmware if necessary to resolve deficiencies.
 - a. Install updates only after receiving Owner's written authorization.
 3. Perform warranty service during normal business hours and commence within 24 hours of Owner's warranty service request.
 4. Warranty Period: 2 years from date of Substantial Completion.
 - a. For Gateway: 2-year parts and labor warranty for each.

PART 2 - PRODUCTS

2.1 DIRECT DIGITAL CONTROL (DDC) SYSTEM FOR HVAC

- A. The following represents a list of acceptable manufacturers:
1. Concierge by Trane
 2. Orion Controls (Formerly WattMaster)
 3. Verasys by Johnson Controls
 4. Other manufacturers with prior approval from the Owner and Engineer

2.2 DDC SYSTEM DESCRIPTION

- A. Microprocessor-based monitoring and control including analog/digital conversion and program logic. A control loop or subsystem in which digital and analog information is received and processed by a microprocessor, and digital control signals are generated based on control algorithms and transmitted to field devices to achieve a set of predefined conditions.
1. DDC system consisting of high-speed peer-to-peer network of distributed DDC controllers, operator interfaces, and software.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.3 WEB ACCESS

- A. DDC system to be web based or web compatible.
1. Web-Based Access to DDC System:
 - a. DDC system software based on server thin-client architecture, designed around open standards of web technology. DDC system server accessed using a web browser over DDC system network, using Owner's LAN, and remotely over Internet through Owner's LAN.
 - b. Intent of thin-client architecture is to provide operators complete access to DDC system via a web browser. No special software other than a web browser is required to access graphics, point displays, and trends; to configure trends, points, and controllers; and to edit programming.
 - c. Password-protected web access.
 2. Web-Compatible Access to DDC System:
 - a. Workstation or Server to perform overall system supervision and configuration, graphical user interface, management report generation, and alarm annunciation.
 - b. DDC system to support web browser access to building data. Operator using a standard web browser is able to access control graphics and change adjustable set points.
 - c. Password-protected, encrypted web access.

2.4 PERFORMANCE REQUIREMENTS

- A. The following is a sequence of operation that the selected system will need to be able to perform for Constant Air Volume (CAV) Applications:

Mode Enable Sensor Options

The temperature of this sensor will determine whether the unit is in heating, cooling or vent mode during Occupied operation. The following options are available for a CAV unit:

- Space Air Temperature Sensor
- Return Air Temperature Sensor
- Outside Air Temperature Sensor (If in Exhaust Hood On Operation described in a later section)

Occupied Operation

There are several ways to initiate the Occupied Mode of operation for the VCM-X Controller:

- Internal week schedule
- Remote Forced Occupied contact closure
- Pushbutton Override button on a Space Sensor (Override length is user adjustable)
- Monitoring an external scheduling device

Scheduling

- Has an internal clock that provides 7 day scheduling with 2 start/stops per day.
- Allows scheduling of up to 14 holiday periods per year.

Unoccupied Operation

- Uses Night Setback Setpoints for heating and cooling calls. If Night Setback Setpoints are left at the default 30°, no Night Setback operation will occur and the unit will be off.
- Uses normal dehumidification setpoint for unoccupied dehumidification calls if Night Humidity Control is configured.
- Outdoor air damper will be closed except if unit is in unoccupied economizer free cooling mode.
- If there is no call for heating, cooling or dehumidification the unit will be off.

HVAC Modes of Operation

There are 5 possible HVAC Modes of Operation:

- Cooling
- Heating
- Ventilation
- Dehumidification
- Off

Cooling Mode without Digital Scroll Compressor

- Available cooling options are staged DX, Modulating Chilled Water and On/Off Chilled Water.
- Cooling is enabled when the temperature at the Mode Enable Sensor rises one deadband above the Cooling Setpoint. Cooling is disabled when the Mode Enable temperature falls one deadband below the Cooling Setpoint. The setpoint and deadband are user adjustable.
- In the Cooling Mode, as the Supply Air Temperature (SAT) rises above the Active Supply Air Cooling Setpoint (see Supply Air Temperature Setpoint Reset section for explanation), cooling will begin to stage on or to modulate. Each stage must meet its Minimum Off Time (adj.) before it is allowed to energize and successive stages are subject to a Cooling Stage Up Delay (adj.).
- Cooling stages will continue to run until the SAT falls below the Active Supply Air Temperature Setpoint minus the Cooling Stage Control Window at which point the cooling will begin to stage off. Each stage must meet its Minimum Run Time (adj.) before it is allowed to stage off and successive stages are subject to a Cooling Stage Down Delay (adj.).

Cooling Mode without Digital Scroll Compressor (Cont'd)

- Mechanical cooling is disabled if the Outdoor Air Temperature (OAT) falls 1° below the Cooling Lockout Setpoint and will remain disabled until the OAT rises 1° above the Cooling Lockout Setpoint. If the OAT disables mechanical cooling while it is currently operating, mechanical cooling will stage off as minimum run times and stage down delays are satisfied.
- If the economizer is enabled it will function as the first stage of cooling (see Economizer section).

Cooling Mode with Digital Scroll Compressor and Optional Fixed Capacity Scroll Compressors

- Cooling is enabled when the temperature at the Mode Enable Sensor rises one deadband above the Cooling Setpoint. Cooling is disabled when the Mode Enable temperature falls one deadband below the Cooling Setpoint. The setpoint and deadband are user adjustable.
- In the cooling mode, as the Supply Air Temperature (SAT) rises above the Active Supply Air Cooling Setpoint (see Supply Air Temperature Setpoint Reset section for explanation), the Digital Compressor will stage on and modulate to control to the Active Supply Air Cooling Setpoint.
- If additional cooling is required, fixed compressor stages can be staged on while the Digital Compressor continues to modulate.
- To stage up the extra compressor(s), the SAT needs to be above the Active Supply Air Cooling Setpoint and the Digital Compressor needs to be at 100% for a period of time equal to the Stage Up Delay. Once a fixed compressor is enabled the digital compressor signal will go to 10% and modulate up as needed. This will repeat as additional fixed compressors are staged up.
- For compressors to stage on, Minimum Off Times (adj.) must be satisfied as well as Stage Up Delays (adj.).
- To stage down the extra compressor(s), the SAT needs to be below the Active Supply Air Cooling Setpoint minus the Cooling Stage Control Window and the Digital Compressor needs to be at 0% for a period of time equal to the Stage Down Delay. Once a fixed compressor stages off the digital compressor will go to 100% and modulate down as needed. This will repeat as additional fixed compressors stage off.
- For compressors to stage down, Minimum Run Times (adj.) must be satisfied as well as Stage Down Delays (adj.). The digital compressor is always the last compressor to be deactivated.
- Mechanical cooling is disabled if the outdoor air temperature (OAT) falls 1° below the Cooling Lockout Setpoint and will remain disabled until the OAT rises 1° above the Cooling Lockout Setpoint. If the OAT disables mechanical cooling while it is currently operating, mechanical cooling will stage off as minimum run times and stage down delays are satisfied.
- If the economizer is enabled it will function as the first stage of cooling (see Economizer section).

Cooling Mode with Multiple Digital Scroll Compressors (Using Full Digital Compressor Module)

- Cooling is enabled when the temperature at the Mode Enable Sensor rises one deadband above the Cooling Setpoint. Cooling is disabled when the Mode Enable temperature falls one deadband below the Cooling Setpoint. The setpoint and deadband are user adjustable.
- In a unit with (2) Digital Scroll Compressors, as the Supply Air Temperature (SAT) rises above the Active Supply Air Cooling Setpoint (see Supply Air Temperature Setpoint Reset section for explanation), the 1st compressor will stage on and modulate as needed to maintain the SAT at the Active Supply Air Cooling Setpoint.
- If the 1st compressor modulates up to 60%, a Stage Up Delay Timer will begin. If, after the Stage Up Delay has been met, the signal is still at 60% or above and the SAT is above the SAT Cooling Setpoint, the signal to the 1st Digital Scroll Compressor will be cut in half and the 2nd Digital Scroll Compressor will be enabled at that same capacity. Both Digital Scroll Compressors will then modulate up together as needed.
- If both Digital Scroll Compressors modulate down to 30%, the Stage Down Delay Timer will begin. If, after the Stage Down Delay has been met, the compressors are still at 30% and the SAT is below the SAT Setpoint minus the Cooling Stage Control Window, then the 2nd Digital Scroll Compressor will stage off while the 1st compressor goes to 60% and modulates as needed.

- In a unit with (4) Digital Scroll Compressors, compressors 1 and 3 will activate at the same time and modulate together (acting as compressor 1 above). Compressors 2 and 4 will activate at the same time and modulate together (acting as compressor 2 above).
- If the economizer is enabled it will function as the first stage of cooling (see Economizer section).

Heating Mode

- Available heating options are Staged Gas, Staged Electric, Modulating Gas (using MODGAS II Controller), On/Off Hot Water, Modulating Hot Water and Modulating SCR Electric.
- Heating is enabled when the temperature at the Mode Enable Sensor falls one deadband below the Heating Setpoint. Heating is disabled when the Mode Enable temperature rises one deadband above the Heating Setpoint.
- In the Heating Mode, as the Supply Air Temperature falls below the Active Supply Air Heating Setpoint (see Supply Air Temperature Setpoint Reset section for explanation), the heating will begin to stage on or to modulate. Each stage must meet its Minimum Off Time (adj.) before it is allowed to energize and successive stages are subject to a Heating Stage Up Delay (adj.).
- Heating stages will continue to run until the supply air temperature rises above the Active Supply Air Temperature Setpoint plus the Heating Stage Control Window at which point the heating will begin to stage off. Each stage must meet its Minimum Run Time (adj.) before it is allowed to stage off and successive stages are subject to a Heating Stage Down Delay (adj.).
- Mechanical heating is disabled if the outdoor air temperature (OAT) rises 1° above the Heating Lockout Setpoint and will remain disabled until the OAT falls 1° below the Heating Lockout Setpoint. If the OAT disables mechanical heating while it is currently operating, mechanical heating will stage off as minimum run times and stage down delays are satisfied.
- The controller has dual heating capability (2 forms of heat). The following are the possible configurations for the 1st and 2nd forms of heat:
 - 1st -- Modulating SCR Electric or Modulating HW heat & 2nd -- MODGAS II (Allows fine tuning that ModGas alone cannot provide because of the 30% minimum turndown)
 - 1st -- Modulating SCR Electric or Modulating HW heat & 2nd -- Stages (Allows fine tuning)
 - 1st -- MODGAS II & 2nd -- Stages.(For supplemental heat)
- During stage up of these dual heating options the 1st form of heat (modulating SCR Electric, Modulating HW heat or the ModGas) has to be at 100% before the 2nd form can be activated. During stage down, the 1st form of heat must be at 0% before the 2nd form can be de-activated.
- Modulating SCR heat and Modulating HW heat cannot be used together for dual heating.
- For heat pump heating, see the Heat Pump Operation section.

Ventilation Mode

- This mode is only available in the Occupied Mode of operation on units configured for continuous supply fan operation and is generated anytime there is no demand for heating or cooling.

Dehumidification Mode without Digital Scroll Compressor

- Dehumidification is enabled based on an Indoor Humidity Setpoint and requires a Space or Return Air Humidity Sensor.
- Dehumidification can be selected as a priority mode and is then active anytime the humidity is above the Indoor Humidity Setpoint; otherwise it is only available when heating and cooling demands are satisfied (Vent Mode).
- Once in DX Dehumidification, compressors are staged to maintain the Evaporator Coil Suction Temperature at the Coil Suction Temperature Setpoint. A coil suction pressure sensor is required and is typically factory installed
- With Modulating Chilled Water Dehumidification the valve will open to 100%, and with On/Off Chilled Water Dehumidification the valve will open.
- Dehumidification Reheat is always controlled to the appropriate Active Supply Air Temperature Setpoint which will be dependent on whether you are in Heating Dehumidification, Cooling

Dehumidification, or Vent Dehumidification. During Vent Mode Dehumidification the Supply Air Temperature Setpoint is calculated to be halfway between the HVAC Mode Setpoints.

- Reheat options are modulating or fixed hot gas reheat, field wired downstream duct heat, and, in certain applications, unit heat.
- Heating may also be used to supplement hot gas reheat if necessary. In this case, one form of modulating SCR Electric or Modulating HW heat or 1 stage of gas or electric heat may be used.
- **WARNING:** Using simultaneous heating and cooling cannot be approved unless the HVAC unit has been specifically designed for this purpose. A Special Price Authorization (SPA) must be obtained from the factory for these applications to avoid warranty and/or rating problems.

Dehumidification Mode with a Digital Scroll Compressor And Optional Fixed Compressor(s)

- Dehumidification is enabled based on an Indoor Humidity Setpoint and requires a Space or Return Air Humidity Sensor.
- Dehumidification can be selected as a priority mode to be active anytime the humidity is above the Indoor Humidity Setpoint, otherwise it is only available when heating and cooling demands are satisfied (Vent Mode).
- Once in dehumidification, the unit will maintain the Evaporator Coil Suction Temperature at the Coil Suction Temperature Setpoint by modulating the Digital Compressor.
- A coil suction pressure sensor is required and is typically factory installed.
- If additional dehumidification is required, fixed compressor stage(s) can be staged on. Once fixed compressor(s) are activated the Digital Compressor will only be allowed to modulate down to 70% in order to maintain reheat capacity.
- To stage up the extra compressor(s), the Evaporator Coil Suction Temperature needs to be above the Evaporator Coil Suction Temperature Setpoint and the Digital Compressor needs to be at 100% for a period of time equal to the Stage Up Delay. Once a fixed compressor is enabled the digital compressor signal will go to 70% and modulate up as needed. This will repeat as additional fixed compressors are staged up.
- To stage down the extra compressor(s), minimum runs times must be met, the Evaporator Coil Suction Temperature needs to be below the Evaporator Coil Suction Temperature Setpoint minus the Cooling Stage Control Window, and the Digital Compressor needs to be at 70% for a period of time equal to the Stage Down Delay. Once a fixed compressor stages off, the digital compressor will go to 100% and modulate down as needed to maintain the coil temperature setpoint. This will repeat as additional fixed compressors stage off. The digital compressor is always the last compressor to be deactivated.
- Dehumidification Reheat is always controlled to the appropriate Active Supply Air Temperature Setpoint which will be dependent on whether you are in Heating Dehumidification, Cooling Dehumidification, or Vent Dehumidification. During Vent Mode Dehumidification the Supply Air Temperature Setpoint is calculated to be halfway between the HVAC Mode Setpoints.
- Reheat options are modulating or fixed hot gas reheat, field wired downstream duct heat, and, in certain applications, unit heat.
- Heating may also be used to supplement hot gas reheat if necessary. In this case, one form of modulating SCR Electric or Modulating HW heat or 1 stage of gas or electric heat may be used.
- **WARNING:** Using simultaneous heating and cooling cannot be approved unless the HVAC unit has been specifically designed for this purpose. A Special Price Authorization (SPA) must be obtained from the factory for these applications to avoid warranty and/or rating problems.

Dehumidification Mode with Multiple Digital Scroll Compressors (Using the Full Digital Scroll Compressor Module)

- Dehumidification is enabled based on an Indoor Humidity Setpoint and requires a Space or Return Air Humidity Sensor.
- Dehumidification can be selected as a priority mode to be active anytime the humidity is above the Indoor Humidity Setpoint, otherwise it is only available when heating and cooling demands are satisfied (Vent Mode).
- Once in dehumidification, the unit will maintain the Evaporator Coil Suction Temperature at the Coil Suction Temperature Setpoint by modulating the Digital Compressors.

- A coil suction pressure sensor is required and is typically factory installed.
- In a unit with (2) Digital Scroll Compressors the 1st compressor will modulate up to 100% before the 2nd compressor is energized. Once the 2nd compressor is energized, the 1st compressor will be locked at 100%.
- To stage up the extra compressor, the Evaporator Coil Suction Temperature needs to be above the Evaporator Coil Suction Temperature Setpoint and the 1st Digital Compressor needs to be at 100% for a period of time equal to the Stage Up Delay.
- To stage down the extra compressor, the minimum run time must be met, the Evaporator Coil Suction Temperature needs to be below the Evaporator Coil Suction Temperature Setpoint minus the Cooling Stage Control Window, and the 2nd Digital Compressor needs to be at 0% for a period of time equal to the Stage Down Delay.

Dehumidification Mode with Multiple Digital Scroll Compressors (Using the Full Digital Scroll Compressor Module) Cont'd

- In units with (4) Digital Scroll Compressors, a set of (2) compressors will operate together as compressor 1 and a second set of (2) compressors will operate together as compressor 2.
- Dehumidification Reheat is always controlled to the appropriate Active Supply Air Temperature Setpoint which will be dependent on whether you are in Heating, Cooling, or Vent Dehumidification. During Vent Mode Dehumidification the Supply Air Temperature Setpoint is calculated to be halfway between the HVAC Mode Setpoints.
- Reheat options are modulating or fixed hot gas reheat, field wired downstream duct heat, and, in certain applications, unit heat.
- Heating may also be used to supplement hot gas reheat if necessary. In this case, one form of modulating SCR Electric or Modulating HW heat or 1 stage of gas or electric heat may be used.
- **WARNING:** Using simultaneous heating and cooling cannot be approved unless the HVAC unit has been specifically designed for this purpose. A Special Price Authorization (SPA) must be obtained from the factory for these applications to avoid warranty and/or rating problems.

Off Mode

- Occurs in the Unoccupied Mode when there is no heating, cooling or dehumidification demand.
- Can only occur in the Occupied Mode if the fan is configured to cycle with heating and cooling and there is no call for heating, cooling or dehumidification.
- Supply fan is off and the outside air damper is closed.

Economizer Operation

- Enabled when Outdoor Air (OA) drybulb or wetbulb temperature falls below the Economizer Enable Setpoint by 1° and the OA temperature is at least 5° below the return air temperature (if a return air temperature sensor is being used).
- Economizer operation is disabled when the OA temperature rises 1° above the Economizer Enable Setpoint.
- Wetbulb operation requires an Outdoor Humidity Sensor.
- Economizer acts as 1st stage of cooling and controls to the Active Supply Air Cooling Setpoint. If the economizer reaches 100% and the supply air temperature is still above setpoint, mechanical cooling is allowed to stage up while the economizer is held at the full open position.
- An Economizer Minimum Position can be programmed into the controller.
- A CO₂ sensor can be used to reset the Economizer Minimum Position for IAQ control.
- Economizer Damper is closed during Unoccupied Mode, except when unoccupied free cooling is used during night setback operation.

Heat Pump Operation

- Cooling and Dehumidification Modes will operate in the same manner as described above.
- A reversing valve relay output can be configured to activate with the first compressor stage in the heating mode (default) or the cooling mode of operation.

- In the Heating Mode, Compressor Heat, Auxiliary Heat and Emergency Heat can be used to achieve the Active Supply Air Heating Setpoint.
- When the Outdoor Air Temperature (OAT) below the Heating Setpoint, but above the OAT Compressor Lockout, Compressor Heat will be used and can be supplemented by staged or modulating Auxiliary Heat.
- When the OAT is below the OAT Compressor Lockout, Compressor Heat is locked out. Auxiliary Heat will then be the primary heat and can be supplemented with stage(s) of Emergency Heat (if available). Emergency heat is only available when the OAT is below the OAT Compressor Lockout.
- Above the OAT Heating Lockout, only Compressor Heat can occur.
- If a Head Pressure Module and Pressure Transducer(s) are installed a Defrost Cycle is available. If the compressor(s) are operating in the heating mode and the evaporator coil suction temperature falls below the Defrost Temperature Setpoint, the unit will enter the Defrost Mode, provided the user adjustable Defrost Interval has elapsed since the last Defrost Cycle.

Heat Pump Operation (Cont'd)

- In the Defrost Cycle, the reversing valve signal is removed, and the compressors are brought to maximum capacity. The unit will remain in the Defrost Cycle for 10 minutes or until the head pressure reaches 450 PSI.
- The Defrost Interval (time between Defrost Cycles) can be automatically lengthened or shortened by an internal Adaptive Defrost Interval Adjustment Setpoint value depending on whether the Defrost Cycle is terminated early or runs the full 10 minutes.
- If the unit leaves the compressor heating mode, the Defrost Interval will restart once the unit re-enters the compressor heating mode.

Single Zone VAV

- Hybrid CAV/VAV application where the supply fan VFD is modulated to maintain the Space Temperature Setpoint while heating or cooling is modulated to maintain the Leaving Air Setpoint.
- This sequence will only provide satisfactory performance when modulating heating and cooling are used. Staged heating and cooling will not provide stable performance.
- The Space Temperature Sensor determines the heating or cooling mode of operation. Heating and cooling are enabled and disabled as described above in the Heating and Cooling sections
- In the Cooling Mode the modulating cooling source will modulate to maintain the Cooling Leaving Air Setpoint. The supply fan VFD will begin operation at 30% and modulate between 30% and 100% as needed to maintain the space temperature within the Space Cooling Reset Window created by configuring a Space Cooling High and a Space Cooling Low Reset Source Setpoint.
- In the Heating Mode the modulating heating source will modulate to maintain the Heating Leaving Air Setpoint. The supply fan VFD will begin operation at 50% and modulate between 50% and 100% as needed to maintain the space temperature within the Space Heating Reset Window created by configuring a Space Heating High and a Space Heating Low Reset Source Setpoint.
- In the Vent Mode of operation the supply fan will operate at 30%.
- In Heat Pump Heating Mode of operation the supply fan will modulate between 75% and 100%.
- Dehumidification Mode will operate as described above in earlier Dehumidification sections. The VFD will operate as described above depending on if the space is calling for Cooling, Heating or Vent Mode operation.
- During CO2 override operation of the outdoor air damper, the supply fan will be forced to 75% and can modulate up from there as needed.

Space Sensor Operation

- Available as a Plain Sensor, Sensor with Override, Sensor with Setpoint Slide Adjust, and Sensor with Override and Setpoint Slide Adjust (this is the version that is factory supplied).
- A digital space sensor is also available with override and setpoint adjustment capability.
- Sensors with Setpoint Slide Adjust can be programmed to allow space setpoint adjustment of up to $\pm 10^{\circ}$ F.

- The Slide Adjust can adjust the setpoint of whichever temperature sensor is configured as the controlling sensor, even if it is not the installed Space Sensor. If Space Temperature is the SAT/Reset Source, then the Slide Adjust will adjust the HVAC Mode Enable setpoints and the SAT/Reset Source setpoints simultaneously.
- During Unoccupied hours the Override Button can be used to force the unit back into the Occupied Mode (by pressing the button for less than 3 seconds) for a user-defined override duration of up to 8.0 hours. Pressing the button between 3 and 10 seconds cancels the override.

Supply Fan Operation

- Occupied Mode – Supply fan can be configured to run continuously (default) or to cycle with heating, cooling or dehumidification.
- Unoccupied Mode – Supply fan will cycle on a call for heating, cooling or dehumidification.
- Anytime the Supply Fan is requested to start, a 1 minute minimum off timer must be satisfied. If the timer is satisfied the Supply Fan relay is activated while all other outputs are held off for a period of 1-2 minutes to purge stagnate air from the ductwork before heating or cooling occurs.
- In fan cycle mode or when going unoccupied the supply fan is held on for 2 minutes after the last stage of heating or cooling stages off.

Condenser Fan Control (Using a Condenser Head Pressure Module)

- The condenser fan is commanded on when the first compressor is enabled.
- Can monitor up to (4) head pressure transducers and control the condenser fan based on the highest of the (4) readings.
- In the Cooling Mode the speed of the condenser fan will be adjusted between 0% and 100% to maintain the desired Head Pressure Setpoint.
- In Heat Pump Heating Mode the condenser fan will operate at 100%.
- In units with (2) physically separate condenser sections, the highest reading of transducers 1 and 2 will control the fan output for the 1st section, while the highest reading of transducers 3 and 4 will control the fan of the 2nd condenser section.

Supply Air Temperature Setpoint Reset

- Various sources can be configured to reset the Supply Air Temperature (SAT) Setpoint. Since the Supply Air Temperature Setpoints are not fixed during reset, we refer to them as “**Active Supply Air Temperature Setpoints**”. The following Reset Source options are available.
 - Space Temperature
 - Return Air Temperature
 - Outdoor Air Temperature
 - Remote Voltage Signal
 - Fan VFD Percentage
- For whatever option is selected, a High and a Low Reset Source Setpoint must be configured that will correspond to configured Low and High SAT Setpoints. This must be done separately for the Cooling Mode setpoints and for the Heating Mode setpoints.
- When the Reset Source is at its highest configured setpoint the SAT Setpoint will be reset to its lowest configured setpoint. When the Reset Source is at its lowest configured setpoint the SAT Setpoint will be reset to its highest configured setpoint.
- The only exception to the above rule would be if doing reset based on the Supply Fan VFD Signal Percentage during the heating mode. In that case at the High Reset Source Setpoint the supply air setpoint would be reset to the configured High SAT Setpoint, etc.
- In all cases as the Reset Source value moves within its range established by the configured High and Low Reset Setpoints, the Supply Air Setpoint will be proportionally reset within its range established by the configured Low and High SAT Setpoints.
- If Dehumidification Priority has been configured and the unit is in Cooling Dehumidification or the Heating Dehumidification Mode, the SAT reset will occur as described above.
- In the Vent Mode or the Vent Dehumidification Mode, the SAT Setpoint will be calculated to be halfway between the HVAC Mode Enable Setpoints.

Coil Suction Temperature Setpoint Reset

During dehumidification the VCM-X will automatically reset the Coil Suction Temperature Setpoint within a $\pm 5^\circ$ range based on the space or return air humidity sensor condition changing $\pm 5\%$ from the humidity setpoint.

Pre-heater Operation

- This option allows pre-heating of cold outside air before it reaches the evaporator coils.
- Useful in HW/CW applications or during CO₂ control of the economizer in low temp conditions.
- Available by setting a Low Ambient Protection setpoint and configuring a Pre-Heater Relay.
- When the Outdoor Air Temperature falls below the Low Ambient Protection Setpoint the Pre-Heat Relay will enable.
- Only one relay can be configured for pre-heating.

Airflow Monitoring

- Outdoor, Supply and Return Airflow can be monitored using specific Airflow Stations.
- The Outdoor Air Damper can be controlled to maintain an Outdoor Air CFM Setpoint.

Building Pressure Control

This can be used to maintain a user adjustable Building Pressure Setpoint (requires a Building Pressure Sensor). Available controlling output options are:

- A relay output for On/Off operation
- A 0-10VDC modulating output

There are 2 possible methods of control:

- **Direct Acting**, meaning that on an **increase** in building static pressure, an on/off exhaust fan can be activated or a VFD exhaust fan can be ramped up.
- **Reverse Acting**, meaning that on a **decrease** in building static pressure, the outside air damper can be modulated open or a supply fan VFD can be ramped up. If using the outside air damper in this manner, no economizer free cooling or IAQ operation will be available

Heat Wheel Operation

- A Heat Wheel Relay can be configured and will be active anytime the supply fan is operating and the unit is not in economizer mode (if configured for economizer operation).
- If the Heat Wheel Relay is active, a heat wheel defrost cycle will occur that will turn the Heat Wheel Relay off for 2 minutes if both of the following conditions occur:
 - The outdoor temperature is below the Heat Wheel Defrost Setpoint
 - 30 minutes have elapsed since the last defrost cycle.

Exhaust Hood On Operation (Make Up Air Force Operation)

- The controller can be configured to normally operate as a recirculating CAV Unit, but switch to Make Up Air operation when an exhaust hood is turned on.
- The controller would be configured as a CAV unit with Indoor Temperature and Humidity Control.
- A Hood-On 24 VAC wet contact closure forces the unit into Make Up Air (MUA) Force mode.
- This operation can only occur during Occupied Operation
- Regardless of the current configuration, this contact closure forces the unit into outdoor air temperature controlled operation (MUA) with the outside damper at 100%.
- Heating and Cooling modes are then enabled based on outdoor temperatures using the regular configured indoor Mode Enable Setpoints.
- Dehumidification is then enabled based on an Outdoor Air Dewpoint Setpoint. This requires an Outdoor Air Humidity sensor and an Outdoor Air Temperature sensor.

Duct Static Pressure Control for Filter Loading

- In order to maintain a constant CFM through the supply air ducts on a mixed air CAV Unit, the VCM-X can utilize a duct static pressure sensor (used to monitor the discharge pressure) in conjunction with a supply fan VFD.
- If the filters are getting dirty, the VCM-X will ramp up the VFD to compensate for the decrease in airflow.
- To utilize this feature the unit must be configured to use Duct Static Pressure VFD fan control.
- This feature cannot be used if this is a Zoning application with typical duct static pressure control.

Remote Forced Heating and Cooling

- These inputs (24 VAC wet contacts) allow another control system or a thermostat to force the unit into heating or cooling.
- To utilize these inputs, the heating and cooling setpoints in the VCM-X must be set to zero.
- Once in this force mode the unit will modulate or stage heating/cooling to maintain the appropriate heating or cooling leaving air setpoint until the force command is removed.

Remote Forced Dehumidification

- This input (24 VAC wet contact) allows another control system or a humidistat to force the unit into dehumidification.
- To utilize this feature the humidity setpoint in the VCM-X must be set to 100%.
- Once in this force mode the unit will stage compressors to maintain the suction temperature setpoint until the force command is removed.

Mixed Air Bypass Operation

- In certain CAV applications the VCM-X controller can operate a Mixed Air (M/A) Bypass damper during the dehumidification mode.
- During dehumidification the M/A Bypass damper will modulate from 0% to 100% as the Space Temperature falls from the Cooling Setpoint to the mid-point between the Cooling and Heating Setpoints.
- If the M/A Bypass damper has reached 100% open, reheat can be energized to maintain the Supply Air Temperature at the Supply Air Temperature Setpoint.
- The M/A Bypass damper remains closed during heating, cooling and ventilation modes.

Proof of Flow Interlock

- A Proof of Flow switch (by others) provides a 24 VAC wet contact closure when the supply fan is operating.
- If this contact opens while the fan is being called to run, all heating and cooling is disabled and a Fan Proving Alarm is generated.

Dirty Filter Status

- A differential pressure switch (by others) is used to provide a 24 VAC wet contact closure to indicate a dirty filter status. A Dirty Filter Alarm is then generated.

Emergency Shutdown

- A 24 VAC wet contact input is available to be used with a N.C. Smoke Detector, Firestat, or other shutdown condition (all by others).
- If this contact opens it will initiate shutdown of the VCM-X and will generate an alarm condition. This contact closure does not produce an instantaneous shutdown.
- For instantaneous shutdown the device initiating the open condition on this contact should also be wired to cut the 24 V common to the VCM-X relay outputs.

Duct Static Pressure Control for CAV Units with a Bypass Damper in Zoning Applications

If this is a CAV unit that will be utilizing a Bypass Damper for a zoning application, you will need to refer to the section with this same title in the VAV Sequence document for the VCM-X Controller, since the controller needs to be configured as a VAV unit controller.

Temperature Protection

- Activated when the Supply Air Temperature (SAT) rises above the High Cutoff Temperature (immediate) or drops below the Low Cutoff Temperature (for 10 minutes) both of which are user adjustable. This mode shuts off the unit (with a 3 minute fan off delay) until the mode is cancelled.
- This mode is cancelled when the SAT drops 10 degrees below the High Cutoff Temperature Setpoint or rises 10 degrees above the Low Temp Cutoff Temperature Setpoint, or when the unit changes back into Occupied Operation.

Outdoor Air Lockouts

- Mechanical cooling is disabled when the Outdoor Air Temperature is below the Cooling Lockout Setpoint.
- Mechanical heating is disabled when the Outdoor Air Temperature is above the Heating Lockout Setpoint.
- For Air to Air Heat Pumps the Cooling Lockout also applies to Compressor Heating, so it will usually be a lower setting than on Cooling units that are not Air to Air Heat Pumps.

Receives Averaging Broadcasts

- In applications where several CAV Units might be used to condition a large area, such as an auditorium, space sensor averaging may be desired.
- Using the General Broadcast Device, up to 6 space sensors can be averaged and broadcast to the VCM-X Controllers to initiate heating, cooling and vent modes.
- Up to 2 General Broadcast Device can be used to average up to 12 sensors for broadcast.

Relay Outputs

There are up to 20 output relays that that are configurable for the VCM-X controller (Relay #1 is reserved for the Supply Fan and is not configurable). The configuration options are as follows:

| | |
|--|---|
| Cooling Stages | Reversing Valve for Heat Pump Operation |
| Heating Stages | Economizer (Outdoor Air Damper)* |
| Warm up Command for VAV Boxes | Occupied * |
| On/Off Hot Gas Reheat | Alarm* |
| Pre-heater (Explained above) | Override* |
| On/Off Exhaust Fan (see Bldg Pressure) | Heat Wheel (Described above) |

*Relay Explanations Not Previously Discussed:

Economizer (Outdoor Air Damper) Relay

This relay will enable if any one of the following three conditions occurs:

- The unit is configured for Economizer control and the Economizer moves 5% above its Economizer Minimum Setpoint position.
- The unit is configured as a Make Up Air unit (MUA), with 100% outside air, and the unit goes occupied. This condition could not occur on a CAV configured unit.
- The Hood-On contact is made (See Exhaust Hood On Operation above).

Occupied, Alarm, Override Relays

- Occupied Relay – enabled anytime the unit goes into the Occupied Mode
- Alarm Relay – enabled anytime a VCM-X alarm is active
- Override Relay – enabled anytime a space sensor pushbutton override is active

System Broadcasts

- An Outdoor Air Temperature Sensor reading and an Outdoor Air Humidity Sensor reading can be broadcast from one VCM-X controller to all other controllers on the system.

Alarm Detection and Reporting

- Continuously performs self diagnostics during normal operations to determine if any operating failures have occurred.
- These failures (alarms) can be reported to a wall mounted System Manager (requires a Polling Device), the Touch Screen System Manager, a Hand Held Modular Service Tool, or to a computer running Prism II software.
- Diagnostic LEDs on the VCM-X controller will generate "blink codes" for certain alarm conditions.

The following are the available alarm designations for the VCM-X Controller:

| | |
|----------------------------|--------------------------|
| No Supply Sensor | Dirty Filter Alarm |
| Bad outdoor Air Temp | Emergency Shutdown Alarm |
| Space Sensor Failure | Low Supply Air Alarm |
| Mechanical Cooling Failure | High Supply Air Alarm |
| Mechanical Heating Failure | Low Control Temp Alarm |
| Fan Proving Alarm | High Control Temp Alarm |

Trend Logging

- Continuously maintains an Internal Trend Log in memory on the controller which records a fixed set of values at a user-defined interval.
- 120 log positions (timed retrievals) are available on the controller.
- Once these positions are full, it begins overwriting the oldest data.
- Values can be retrieved using the Prism II graphical front-end software program.
- With Prism running continuously, values can be saved to the computer hard drive at regular intervals to keep from losing data.

The following are the fixed items that can be logged:

| | |
|--------------------------------|--|
| Date | Indoor Air Humidity |
| Time | Duct Static Pressure |
| Mode | Building Static Pressure |
| Return Air Temperature | Economizer Signal Percentage |
| Outdoor Air Temperature | Supply Fan VFD/Bypass Damper Signal Percentage |
| Supply Air Temperature | Exhaust Fan VFD/Exhaust Damper Signal Percentage |
| Active Supply Air Setpoint | Modulating Heat Signal Percentage |
| Coil Suction Temperature | Modulating Cool Signal Percentage |
| Outdoor Air Dewpoint | On Board Relay Status |
| Space Temperature | Expansion Board Relay Status |
| Head Pressure | Condenser Fan Signal Percentage |
| Outdoor Air CFM | Return Air or Space CO2 |
| Supply Air CFM | ModGas Module Signal Percentage |
| Modulating Hot Gas Reheat | Module Signal Percentage |
| VCM-X Controller and Expansion | Modules I/O Map |

I/O Map

| VCM-X Controller | | | |
|----------------------------------|---|--------------------------|------------------------|
| | Analog Inputs | Analog Outputs | Relays |
| 1 | Space temperature | Economizer | Supply Fan |
| 2 | Supply Temperature | Supply Fan VFD | Configurable |
| 3 | Return Temperature | | Configurable |
| 4 | Outdoor Temperature | | Configurable |
| 5 | Coil Temperature | | Configurable |
| 6 | Static Pressure | | |
| 7 | Space Sensor Slide Offset or Remote BAS Reset of SAT Setpoint | | |
| VCM-X Expansion Module | | | |
| | Analog Inputs | Analog Outputs | Binary Inputs |
| 1 | Outdoor Humidity | Building Pressure VFD | Emergency Shutdown |
| 2 | Space/RA Humidity | Modulating Heating | Dirty Filter |
| 3 | Not Used | Modulating Cooling | Proof of Flow |
| 4 | Building Pressure | Return Air Damper | Remote Forced Occupied |
| 5 | | Return Air Bypass Damper | Remote Forced Heating |
| 6 | | | Remote Forced Cooling |
| 7 | | | Exhaust Hood On |
| 8 | | | Remote Forced Dehum. |
| 4 Binary Input Expansion Module | | | |
| | Binary Inputs | | |
| 1 | Emergency Shutdown | | |
| 2 | Dirty Filter | | |
| 3 | Proof of Flow | | |
| 4 | Remote Forced Occupied | | |
| 12 Relay Output Expansion Module | | | |
| | Relay Outputs | | |
| 1- | Configurable | | |
| 1 | | | |
| 2 | | | |

- B. The following is a sequence of operation that the selected system will need to be able to perform for Variable Air Volume (VAV) Applications:

Mode Enable Sensor

- In a standard VAV application the Supply Air Temperature (SAT) sensor is configured as the Mode Enable Sensor during the Occupied Mode.
- In this configuration, upon entering the Occupied Mode (after a Morning Warm-Up cycle) the unit operates in the Cooling Mode and controls to the SAT Cooling Setpoint.

Occupied Operation

There are several ways to initiate the Occupied mode of operation for the VCM-X:

- Internal week schedule
- Remote Forced Occupied contact closure
- Pushbutton Override button on a Space Sensor (Override length is user adjustable)
- Monitoring an external scheduling device

Scheduling

- Has an internal 7 day schedule with 2 start/stops per day.
- Allows scheduling of up to 14 holiday periods per year.

Unoccupied Operation

- If a space temperature sensor and/or a space humidity sensor are installed, the unit can use Night Setback Setpoints for heating and cooling calls and the normal dehumidification setpoint for dehumidification calls. Otherwise, unoccupied calls will be generated from VAV Boxes.
- Outdoor air damper will be closed except if unit is in unoccupied economizer free cooling mode.
- If there is no call for heating, cooling or dehumidification the unit will be off.

HVAC Modes of Operation

In a standard VAV configuration there are 6 possible HVAC Modes of Operation:

- Cooling
- Cooling with Supply Air Tempering Heating
- Morning Warm-Up
- Heating (Night Setback Heating)
- Dehumidification
- Off

Cooling Mode without Digital Scroll Compressor:

- Available cooling options are staged DX, Modulating Chilled Water and On/Off Chilled Water.
- In the Cooling Mode, as the Supply Air Temperature rises above the Active Supply Air Cooling Setpoint (see Supply Air Temperature Setpoint Reset section for explanation), cooling will begin to stage on or to modulate. Each stage must meet its Minimum Off Time (adj.) before it is allowed to energize and successive stages are subject to a Cooling Stage Up Delay (adj.).
- Cooling stages will continue to run until the supply air temperature falls below the Active Supply Air Temperature Setpoint minus the Cooling Stage Control Window at which point the cooling will begin to stage off. Each stage must meet its Minimum Run Time (adj.) before it is allowed to stage off and successive stages are subject to a Cooling Stage Down Delay (adj.).
- Mechanical cooling is disabled if the outdoor air temperature (OAT) falls 1° below the Cooling Lockout Setpoint and will remain disabled until the OAT rises 1° above the Cooling Lockout Setpoint. If the OAT disables mechanical cooling while it is currently operating, mechanical cooling will stage off as minimum run times and stage down delays are satisfied.
- If the economizer is enabled it will function as the first stage of cooling (see Economizer section).

Cooling Mode with Digital Scroll Compressor and Option Fixed Capacity Scroll Compressors:

- In the cooling mode, as the Supply Air Temperature (SAT) rises above the Active Supply Air Cooling Setpoint (see Supply Air Temperature Setpoint Reset section for explanation), the Digital Compressor will stage on and modulate to control to the Active Supply Air Cooling Setpoint.
- If additional cooling is required, fixed compressor stages can be staged on while the Digital Compressor continues to modulate.
- To stage up the extra compressor(s), the SAT needs to be above the Active Supply Air Cooling Setpoint and the Digital Compressor needs to be at 100% for a period of time equal to the Stage Up Delay. Once a fixed compressor is enabled the digital compressor signal will go to 10% and modulate up as needed. This will repeat as additional fixed compressors are staged up.
- For compressors to stage on, Minimum Off Times (adj.) must be satisfied as well as Stage Up Delays (adj.).
- To stage down the extra compressor(s), the SAT needs to be below the Active Supply Air Cooling Setpoint minus the Cooling Stage Control Window and the Digital Compressor needs to be at 0% for a period of time equal to the Stage Down Delay. Once a fixed compressor stages off the digital compressor will go to 100% and modulate down as needed. This will repeat as additional fixed compressors stage off.

- For compressors to stage down, Minimum Run Times (adj.) must be satisfied as well as Stage Down Delays (adj.). The digital compressor is always the last compressor to be deactivated.
- Mechanical cooling is disabled if the outdoor air temperature (OAT) falls 1° below the Cooling Lockout Setpoint and will remain disabled until the OAT rises 1° above the Cooling Lockout Setpoint. If the OAT disables mechanical cooling while it is currently operating, mechanical cooling will stage off as minimum run times and stage down delays are satisfied.
- If the economizer is enabled it will function as the first stage of cooling (see Economizer section).

Cooling Mode with Multiple Digital Scroll Compressors (Using Full Digital Compressor Module)

- In a unit with (2) Digital Scroll Compressors, as the Supply Air Temperature (SAT) rises above the Active Supply Air Cooling Setpoint (see Supply Air Temperature Setpoint Reset section for explanation), the 1st compressor will stage on and modulate as needed to maintain the SAT at the Active Supply Air Cooling Setpoint.
- If the 1st compressor modulates up to 60%, a Stage Up Delay Timer will begin. If, after the Stage Up Delay has been met, the signal is still at 60% or above and the SAT is above the SAT Cooling Setpoint, the signal to the 1st Digital Scroll Compressor will be cut in half and the 2nd Digital Scroll Compressor will be enabled at that same capacity. Both Digital Scroll Compressors will then modulate up together as needed.
- If both Digital Scroll Compressors modulate down to 30%, the Stage Down Delay Timer will begin. If, after the Stage Down Delay has been met, the compressors are still at 30% and the SAT is below the SAT Setpoint minus the Cooling Stage Control Window, then the 2nd Digital Scroll Compressor will stage off while the 1st compressor goes to 60% and modulates as needed.
- In a unit with (4) Digital Scroll Compressors, compressors 1 and 3 will activate at the same time and modulate together (acting as compressor 1 above). Compressors 2 and 4 will activate at the same time and modulate together (acting as compressor 2 above).
- Mechanical cooling is disabled if the outdoor air temperature (OAT) falls 1° below the Cooling Lockout Setpoint and will remain disabled until the OAT rises 1° above the Cooling Lockout Setpoint. If the OAT disables mechanical cooling while it is currently operating, mechanical cooling will stage off as minimum run times and stage down delays are satisfied.
- If the economizer is enabled it will function as the first stage of cooling (see Economizer section).

Cooling Mode with Supply Air Tempering Heating

- Applicable for VAV units being used in cold climates where very cold outdoor air being introduced into the unit prevents it from maintaining the Supply Air Temperature (SAT) at the SAT Cooling Setpoint. When this happens the VAV Box heat may not be able to adequately heat the colder supply air.
- In this configuration, unit heat is allowed to operate if the following conditions are met:
 - The Outdoor Air Temperature must fall below the Low Ambient Protection Setpoint (which must be below the Compressor Lockout Setpoint)
 - The SAT must fall below a special SAT Heating Setpoint (used only in this sequence) that is hard-coded to be 2° below the SAT Cooling Setpoint.
 - The economizer must be at its minimum position.
 - The supply fan VFD must be operating above the Heating Minimum VFD Setpoint.
- If these conditions are met unit heat will activate and operate to maintain the SAT at the special 2° offset Heating Setpoint.
- If a stage of heat or ModGas at its minimum turndown position overshoots this Heating Setpoint, the outdoor air damper will be allowed to modulate open to bring the SAT back down. There is a Maximum Heat Economizer Setpoint (adj.) that will limit the amount the outdoor air damper can open during this operation.
- If, after the Heat Stage Minimum Run Time has been satisfied, the economizer has not been able to bring the SAT down within the Heat Control Staging Window, the controller will stage down/off the heat.

Morning Warm-Up Mode:

- Only available in VAV applications where the Supply Air Temperature Sensor is configured as the Mode Enable Sensor.
- This mode occurs when the unit goes from the Unoccupied to the Occupied Mode and the Return Air Temperature is below the Morning Warm-up Target Setpoint.
- In this mode the unit operates in the Heating Mode as described below.
- This mode is in effect until the Return Air Temperature rises above the Morning Warm-Up Target Temperature or until a user adjustable time period elapses.
- If controlled by this unit controller, all VAV boxes are driven either to full open or to a fixed position.
- The Outdoor Air Damper remains closed during this mode.

Heating Mode:

- For normal VAV applications the Heating Mode can be initiated during Morning Warm-Up or Night Setback Heating. Heating can also be used in the special Supply Air Tempering Heating sequence (described above in that section). For other VAV configurations requiring unit heat, consult factory.
- Available heating options are Staged Gas, Staged Electric, Modulating Gas (using MODGAS II controller with the VCM), On/Off Hot Water, Modulating Hot Water and Modulating SCR electric.
- Multiple stages of heating can be configured subject to user adjustable minimum run times, minimum off times, staging up and staging down delays.
- Once in the Heating Mode the unit will stage or modulate heating to maintain the Supply Air Temperature at the Active Supply Air Heating Setpoint (see Supply Air Temperature Setpoint Reset section for explanation).
- This unit has dual heating capability (2 forms of heat). The following are the possible configurations for the 1st and 2nd forms of heat:
 - 1st -- Modulating SCR Electric or Modulating HW heat & 2nd -- MODGAS II (Allows fine tuning that ModGas alone cannot provide because of the 30% minimum turndown)
 - 1st -- Modulating SCR Electric or Modulating HW heat & 2nd -- Stages (Allows fine tuning)
 - 1st -- MODGAS II & 2nd -- Stages.(For supplemental heat)
- During stage up of these dual heating options the 1st form of heat (modulating SCR Electric, Modulating HW heat or the ModGas has to be at 100% before the 2nd form can be activated. During stage down the 1st form of heat must be at 0% before the 2nd form can be de-activated.
- Modulating SCR heat and Modulating HW heat cannot be used together for dual heating.

Dehumidification Mode without Digital Scroll Compressor:

- Dehumidification is enabled based on an Indoor Humidity Setpoint and requires a Space or Return Air Humidity Sensor.
- Dehumidification has to be selected as a priority mode to operate since the unit is always in the Cooling Mode during Occupied operation.
- Once in DX dehumidification, compressors are staged to maintain the Evaporator Coil Suction Temperature at the Coil Suction Temperature Setpoint so as to achieve maximum dehumidification. A Coil Suction Pressure Sensor is required and is typically factory installed.
- With Modulating Chilled Water Dehumidification the valve will open to 100%, and with On/Off Chilled Water Dehumidification the valve will open.
- Dehumidification Reheat is always controlled to the Active Supply Air Temperature Setpoint which will be different during Heating Dehumidification or Cooling Dehumidification.
- Reheat options are modulating or fixed hot gas reheat, field wired downstream duct heat, and, in certain applications, unit heat.
- Heating may also be used to supplement hot gas reheat if necessary. In this case, one form of modulating SCR Electric or Modulating HW heat or 1 stage of gas or electric heat may be used.
- **WARNING:** Using simultaneous heating and cooling cannot be approved unless the HVAC unit has been specifically designed for this purpose. A Special Price Authorization (SPA) must be obtained from the factory for these applications to avoid warranty and/or rating problems.

Dehumidification Mode with Digital Scroll and Optional Fixed Compressor(s):

- Dehumidification is enabled based on an Indoor Humidity Setpoint and requires a Space or Return Air Humidity Sensor.
- Dehumidification has to be selected as a priority mode to operate since the unit is always in the Cooling Mode during Occupied operation.
- Once in dehumidification, the unit will maintain the Evaporator Coil Suction Temperature at the Coil Suction Temperature Setpoint by modulating the Digital Compressor.
- A Coil Suction Pressure Sensor is required and is typically factory installed.
- If additional dehumidification is required, fixed compressor stage(s) can be staged on. Once fixed compressor(s) are activated the Digital Compressor will only be allowed to modulate down to 70% in order to maintain reheat capacity.
- To stage up the extra compressor(s), the Evaporator Coil Suction Temperature needs to be above the Evaporator Coil Suction Temperature Setpoint and the Digital Compressor needs to be at 100% for a period of time equal to the Stage Up Delay. Once a fixed compressor is enabled the digital compressor signal will go to 70% and modulate up as needed. This will repeat as additional fixed compressors are staged up.
- To stage down the extra compressor(s), minimum run times must be met, the Evaporator Coil Suction Temperature needs to be below the Evaporator Coil Suction Temperature Setpoint minus the Cooling Stage Control Window, and the Digital Compressor needs to be at 70% for a period of time equal to the Stage Down Delay. Once a fixed compressor stages off, the digital compressor will go to 100% and modulate down as needed to maintain the coil temperature setpoint. This will repeat as additional fixed compressors stage off. The digital compressor is always the last compressor to be deactivated.
- Dehumidification Reheat is always controlled to the appropriate Active Supply Air Temperature Setpoint which will be dependent on whether you are in Heating Dehumidification or Cooling Dehumidification.
- Reheat options are modulating or fixed hot gas reheat, field wired downstream duct heat, and, in certain applications, unit heat.
- Heating may also be used to supplement hot gas reheat if necessary. In this case, one form of modulating SCR Electric or Modulating HW heat or 1 stage of gas or electric heat may be used.
- **WARNING:** Using simultaneous heating and cooling cannot be approved unless the HVAC unit has been specifically designed for this purpose. A Special Price Authorization (SPA) must be obtained from the factory for these applications to avoid warranty and/or rating problems.

Dehumidification Mode with Multiple Digital Scroll Compressors (Using the Full Digital Scroll Compressor Module)

- Dehumidification is enabled based on an Indoor Humidity Setpoint and requires a Space or Return Air Humidity Sensor.
- Dehumidification has to be selected as a priority mode to operate since the unit is always in the Cooling Mode during Occupied operation.
- Once in dehumidification, the unit will maintain the Evaporator Coil Suction Temperature at the Coil Suction Temperature Setpoint by modulating the Digital Compressors.
- A coil suction pressure sensor is required and is typically factory installed.
- In a unit with (2) Digital Scroll Compressors the 1st compressor will modulate up to 100% before the 2nd compressor is energized. Once the 2nd compressor is energized, the 1st compressor will be locked at 100%.
- To stage up the extra compressor, the Evaporator Coil Suction Temperature needs to be above the Evaporator Coil Suction Temperature Setpoint and the 1st Digital Compressor needs to be at 100% for a period of time equal to the Stage Up Delay.
- To stage down the extra compressor, the minimum run time must be met, the Evaporator Coil Suction Temperature needs to be below the Evaporator Coil Suction Temperature Setpoint minus

the Cooling Stage Control Window, and the 2nd Digital Compressor needs to be at 0% for a period of time equal to the Stage Down Delay.

- In units with (4) Digital Scroll Compressors, a set of (2) compressors will operate together as compressor 1 and a second set of (2) compressors will operate together as compressor 2.
- Dehumidification Reheat is always controlled to the appropriate Active Supply Air Temperature Setpoint which will be dependent on whether you are in Heating Dehumidification or Cooling Dehumidification.
- Reheat options are modulating or fixed hot gas reheat, field wired downstream duct heat, and, in certain applications, unit heat.
- Heating may also be used to supplement hot gas reheat if necessary. In this case, one form of modulating SCR Electric or Modulating HW heat or 1 stage of gas or electric heat may be used.
- **WARNING:** Using simultaneous heating and cooling cannot be approved unless the HVAC unit has been specifically designed for this purpose. A Special Price Authorization (SPA) must be obtained from the factory for these applications to avoid warranty and/or rating problems.

Off Mode

- Occurs in the Unoccupied Mode when no heating, cooling or dehumidification demands exist.
- Supply fan is off and the outside air damper is closed.

Heat Pump Operation

- Cooling and Dehumidification Modes will operate in the same manner as described above in those sections.
- A reversing valve relay output can be configured to activate with the first compressor stage in the heating mode (default) or the cooling mode of operation.
- In the Heating Mode, Compressor Heat, Auxiliary Heat and Emergency Heat can be used to achieve the Active Supply Air Heating Setpoint.
- When the Outdoor Air Temperature (OAT) is above the OAT Compressor Lockout, Compressor Heat will be used and can be supplemented by staged or modulating Auxiliary Heat.
- When the OAT is below the OAT Compressor Lockout, Compressor Heat is locked out. Auxiliary Heat will then be the primary heat and can be supplemented with stage(s) of Emergency Heat (if available). Emergency heat is only available when the OAT is below the OAT Compressor Lockout.
- Above the OAT Heating Lockout, only Compressor Heat can occur.
- If a Head Pressure Module and Pressure Transducer(s) are installed a Defrost Cycle is available. If the compressor(s) are operating in the heating mode and the evaporator coil suction temperature falls below the Defrost Temperature Setpoint, the unit will enter the Defrost Mode, provided the user adjustable Defrost Interval has elapsed since the last Defrost Cycle.

Heat Pump Operation (Cont'd)

- In the Defrost Cycle, the reversing valve signal is removed, and the compressors are brought to maximum capacity. The unit will remain in the Defrost Cycle for 10 minutes or until the head pressure reaches 450 PSI.
- The Defrost Interval (time between Defrost Cycles) can be automatically lengthened or shortened by an internal Adaptive Defrost Interval Adjustment Setpoint value depending on whether the Defrost Cycle is terminated early or runs the full 10 minutes.
- If the unit leaves the compressor heating mode, the Defrost Interval will restart once the unit re-enters the compressor heating mode.

Economizer Operation

- Available when outdoor air (OA) drybulb or wetbulb temperature is below the Economizer Enable Setpoint by 1° and the OA temperature is at least 5° below the return air temperature.
- Economizer operation is disabled when the OA temperature rises 1° above the Economizer Enable Setpoint.

- Wetbulb operation requires an Outdoor Humidity Sensor.
- Economizer acts as 1st stage of cooling and controls to the Active Supply Air Cooling Setpoint. If the economizer reaches 100% and the supply air temperature is still above setpoint, mechanical cooling is allowed to stage up while the economizer is held at the full open position.
- An Economizer Minimum Position can be programmed into the controller.
- CO2 sensor can be used to reset the minimum economizer position for IAQ control.
- Closed during Unoccupied Mode, except when Unoccupied free cooling is required.

Space Sensor Operation

- Available as a Plain Sensor, Sensor with Override, Sensor with Setpoint Slide Adjust, and Sensor with Override and Setpoint Slide Adjust (this is the version that is factory supplied).
- Sensors with Setpoint Slide Adjust can be programmed to allow space setpoint adjustment of up to $\pm 10^{\circ}$ F.
- In a VAV application the space sensor is optional and may only be required if night setback operation is needed. The Override Button function would also be available.
- During Unoccupied hours the Override Button can be used to force the unit back into the Occupied Mode (by pressing the button for less than 3 seconds) for a user-defined override duration of up to 8.0 hours. Pressing the button between 3 and 10 seconds cancels the override.

Supply Fan Operation

- Occupied Mode – Supply fan will run continuously.
- Unoccupied Mode – Supply fan will cycle on a call for heating, cooling or dehumidification.
- Anytime the Supply Fan is requested to start, a 1 minute minimum off timer must be satisfied. If the timer is satisfied the Supply Fan relay is activated while all other outputs are held off for a period of 1-2 minutes to purge stagnate air from the ductwork before heating or cooling occurs.
- In fan cycle mode or when going unoccupied the supply fan is held on for 2 minutes after the last stage of heating or cooling stages off.
- In a VAV application, anytime the Supply Fan is running, the VCM-X is controlling the speed of the VFD to maintain the Duct Static Pressure Setpoint.

Condenser Fan Control (Using a Condenser Head Pressure Module)

- The condenser fan is commanded on when the first compressor is enabled.
- Can monitor up to (4) head pressure transducers and control the condenser fan based on the highest of the (4) readings.
- In the Cooling Mode the speed of the condenser fan will be adjusted between 0% and 100% to maintain the desired Head Pressure Setpoint.
- In Heat Pump Heating Mode the condenser fan will operate at 100%.
- In units with (2) physically separate condenser sections, the highest reading of transducers 1 and 2 will control the fan output for the 1st section, while the highest reading of transducers 3 and 4 will control the fan of the 2nd condenser section.

Supply Air Temperature Setpoint Reset

- Various sources can be configured to reset the Supply Air Temperature (SAT) Setpoint. Since the Supply Air Temperature Setpoints are not fixed during reset, we refer to them as “**Active Supply Air Temperature Setpoints**”. The following Reset Source options are available.
 - Space Temperature
 - Return Air Temperature
 - Outdoor Air Temperature
 - Remote Voltage Signal
 - Fan VFD Percentage
- For whatever option is selected, a High and a Low Reset Source Setpoint must be configured that will correspond to configured Low and High SAT Setpoints. This must be done separately for the Cooling Mode setpoints and for the Heating Mode setpoints.

- When the Reset Source is at its highest configured setpoint the SAT Setpoint will be reset to its lowest configured setpoint. When the Reset Source is at its lowest configured setpoint the SAT Setpoint will be reset to its highest configured setpoint.
- The only exception to the above rule would be if doing reset based on the Supply Fan VFD Signal Percentage during the heating mode. In that case at the High Reset Source Setpoint the supply air setpoint would be reset to the configured High SAT Setpoint, etc.
- In all cases as the Reset Source value moves within its range established by the configured High and Low Reset Setpoints, the Supply Air Setpoint will be proportionally reset within its range established by the configured Low and High SAT Setpoints.
- If Dehumidification Priority has been configured and the unit is in Cooling Dehumidification or the Heating Dehumidification Mode, the SAT reset will occur as described above.
- In the Vent Mode or the Vent Dehumidification Mode, the SAT Setpoint will be calculated to be halfway between the HVAC Mode Enable Setpoints.

Coil Suction Temperature Setpoint Reset

During dehumidification the VCM-X will automatically reset the **Coil Suction Temperature Setpoint** within a $\pm 5^\circ$ range based on the space or return air humidity sensor condition changing $\pm 5\%$ from the humidity setpoint.

Pre-heater Operation

- This option allows pre-heating of cold outside air before it reaches the evaporator coils.
- Useful in HW/CW applications or during CO2 control of the economizer in low temp conditions.
- Available by setting a Low Ambient Protection setpoint and configuring a relay as a Pre-Heater.
- Only one relay can be configured for pre-heating.
- Proof of Flow Interlock will be in effect if it has been configured.

Airflow Monitoring

- Outdoor, Supply and Return Airflow can be monitored using specific Airflow Stations.
- The Outdoor Air Damper can be controlled to maintain an Outdoor Air CFM Setpoint.

Building Pressure Control

This can be used to maintain a user adjustable Building Pressure Setpoint (requires a Building Pressure Sensor). Available controlling output options are:

- A relay output for On/Off operation
- A 0-10VDC modulating output

There are 2 possible methods of control:

- **Direct Acting**, meaning that on an **increase** in building static pressure, an on/off exhaust fan can be activated or a VFD exhaust fan can be ramped up.
- **Reverse Acting**, meaning that on a **decrease** in building static pressure, the outside air damper can be modulated open. When this option is selected, no economizer free cooling or IAQ operation will be available.

Heat Wheel Operation

- If the unit is configured for economizer control, a Heat Wheel Relay can be configured and will only be active when the supply fan is operating and the unit is not in economizer mode.
- If the Heat Wheel Relay is active, a heat wheel defrost cycle will occur that will turn the Heat Wheel Relay off for 2 minutes if both of the following conditions occur:
 - The outdoor temperature is below the Heat Wheel Defrost Setpoint
 - 30 minutes have elapsed since the last defrost cycle.

Proof of Flow Interlock

- This interlock prevents cooling and heating operation in the event of a fan failure.
- A Proof of Flow switch (by others) that provides a 24 VAC wet contact closure is required.

Dirty Filter Status

- A 24 VAC wet contact closure on this input will create a Dirty Filter Alarm.
- A differential pressure switch (by others) is required.

Emergency Shutdown

- A 24 VAC wet contact closure is available that will initiate shutdown of the VCM-X and will generate an alarm condition. This contact closure does not produce an instantaneous shutdown.
- This contact closure can be generated from a smoke detector, fire alarm, or other device based on a condition that needs to shut the unit down.
- For instantaneous shutdown the device initiating the contact closure should also be wired to cut the 24 V common to the VCM-X relay outputs.

Remote Forced Heating and Cooling

- These inputs (24 VAC wet contacts) allow another control system to force the unit into heating or cooling.
- To utilize these inputs, the heating and cooling setpoints in the VCM-X must be set to zero.

Remote Forced Dehumidification

- This input (24 VAC wet contact) allows another control system or a humidistat to force the unit into dehumidification.
- To utilize this feature the humidity setpoint in the VCM-X must be set to 100%.

Duct Static Pressure for VAV Units with VFD or CAV Units with Zoning Bypass Damper

- The VCM-X Controller will need to be configured for "VFD or Bypass Damper Control" and then will read and control Duct Static Pressure in the duct system anytime the fan is operating.
- The Duct Static Pressure Setpoint, Deadband Limits and Controlling Interval are user adjustable.
- A modulating output signal is used to control a Supply Fan VFD or a Zoning Bypass Damper.

VAV Box Compatibility

When the VCM-X Controller is configured for VAV operation and is used in conjunction with Controls System VAV/Zone Controllers the following features are available:

- Can respond to Unoccupied overrides and Unoccupied heating and cooling calls from box controllers.
- Broadcasts the Supply Air Temperature to the boxes so they can use that information to determine Warm-Up Mode or Heating/Cooling/Vent Mode of operation.

When the VCM-X Controller is used in conjunction with 3rd party VAV box controls:

- Can activate a relay to inform the boxes that it is operating in the Warm-Up Mode
- No other communication with the boxes is available.

Zoning Capability

When the VCM-X Controller is configured for zoning operation (zone voting) with heating and cooling capability, and is used in conjunction with Controls System VAV/Zone Controllers the following features are available:

- Broadcasts the Supply Air Temperature to all zones on its loop so they can use that information to determine Heating/Cooling/Vent Mode of operation.

- Broadcasts the Occupied/Unoccupied Schedule, Main Fan Status and Heat Status to all zones on the loop.
- Can respond to Unoccupied overrides and Unoccupied heating and cooling calls from zone controllers.
- Requires a Polling Device to be installed on each zoned loop to calculate the heating and cooling requirements for the unit based on voting information received from each zone.
- The Polling Device then directs the VCM Controller to provide the appropriate amount of heating, cooling and ventilation to satisfy each zone's requirements.

Temperature Protection

- Activated when the Supply Air Temperature (SAT) rises above the High Cutoff Temperature (immediate) or drops below the Low Cutoff Temperature (for 10 minutes) both of which are user adjustable. This mode shuts off the unit (with a 3 minute fan off delay) until the mode is cancelled.
- This mode is cancelled when the SAT drops 10 degrees below the High Cutoff Temperature Setpoint or rises 10 degrees above the Low Temp Cutoff Temperature Setpoint, or when the unit changes back into Occupied Operation.

Outdoor Air Lockouts

- Mechanical cooling is disabled when the Outdoor Air Temperature is below the Cooling Lockout Setpoint.
- Mechanical heating is disabled when the Outdoor Air Temperature is above the Heating Lockout Setpoint.
- For Air to Air Heat Pumps the Cooling Lockout also applies to Compressor Heating, so it will usually be a lower setting than on Cooling units that are not Air to Air Heat Pumps.

Relay Outputs

There are up to 20 output relays that are configurable for the VCM-X controller (Relay #1 is reserved for The Supply Fan and is not configurable). The configuration options are as follows.

| | |
|-------------------------------|---|
| Cooling Stages | Reversing Valve for Heat Pump Operation |
| Heating Stages | Economizer* (Outdoor Air Damper) |
| Warm up Command for VAV Boxes | Occupied* |
| On/Off Hot Gas Reheat | Alarm* |
| Preheat | Override* |
| On/Off Exhaust Fan | Heat Wheel (Described Above) |

***Relay Explanations Not Previously Described:**

Economizer (Outdoor Air Damper) Relay

On a VAV unit this relay will enable if the unit is configured for Economizer control and the Economizer moves 5% above its Economizer Minimum Setpoint position.

Occupied, Alarm, Override Relays

- Occupied Relay – enabled anytime the unit goes into the Occupied Mode
- Alarm Relay – enabled anytime a VCM alarm is active
- Override Relay – enabled anytime a space sensor pushbutton override is active

System Broadcasts

- An Outdoor Air Temperature Sensor reading and an Outdoor Air Humidity Sensor reading can be broadcast from one VCM-X controller to all other controllers on the system.

Local Loop Broadcasts

The following broadcasts can be made from a VCM-X Controller to all VAV Boxes or Zone Controllers on its loop:

- Real Time Clock information
- Supply Air Temperature
- Occupied/Unoccupied Schedule
- Main fan and heat status

Alarm Detection and Reporting

- Continuously performs self diagnostics during normal operations to determine if any operating failures have occurred.
- These failure (alarms) can be reported to a wall mounted System Manager (requires a Polling Device), a hand-held Modular Service Tool, the Touch Screen System Manager, or to a computer running Prism II software.
- Diagnostic LEDs on the VCM controller will generate "blink codes" for certain alarm conditions.

The following are the available alarm designations for the VCM-X Controller:

| | |
|----------------------------|--------------------------|
| No Supply Sensor | Dirty Filter Alarm |
| Bad outdoor Air Temp | Emergency Shutdown Alarm |
| Space Sensor Failure | Low Supply Air Alarm |
| Mechanical Cooling Failure | High Supply Air Alarm |
| Mechanical Heating Failure | Low Control Temp Alarm |
| Fan Proving Alarm | High Control Temp Alarm |

Trend Logging

- Continuously maintains an Internal Trend Log in memory on the controller which records a fixed set of values at a user-defined interval.
- 120 log positions are available on the controller.
- Once these positions are full, it begins overwriting the oldest data.
- Values can be retrieved using the Prism II graphical front-end software program.
- With Prism running continuously, values can be saved to the computer hard drive at regular intervals to keep from losing data.

The following are the fixed items that can be logged:

| | |
|----------------------------|--|
| Date | Indoor Air Humidity |
| Time | Duct Static Pressure |
| Mode | Building Static Pressure |
| Return Air Temperature | Economizer Signal Percentage |
| Outdoor Air Temperature | Supply Fan VFD/Bypass Damper Signal Percentage |
| Supply Air Temperature | Exhaust Fan VFD/Exhaust Damper Signal Percentage |
| Active Supply Air Setpoint | Modulating Heat Signal Percentage |
| Coil Suction Temperature | Modulating Cool Signal Percentage |
| Outdoor Air Dewpoint | On Board Relay Status |
| Space Temperature | Expansion Board Relay Status |
| Head Pressure | Condenser Fan Signal Percentage |
| Outdoor Air CFM | Return Air or Space CO2 |
| Supply Air CFM | ModGas Module Signal Percentage |
| Modulating Hot Gas Reheat | Module Signal Percentage |

VCM-X Controller and Expansion Modules I/O Map

I/O Map

| VCM-X Controller | | | |
|----------------------------------|---|--------------------------|------------------------|
| | Analog Inputs | Analog Outputs | Relays |
| 1 | Space temperature | Economizer | Supply Fan |
| 2 | Supply Temperature | Supply Fan VFD | Configurable |
| 3 | Return Temperature | | Configurable |
| 4 | Outdoor Temperature | | Configurable |
| 5 | Coil Temperature | | Configurable |
| 6 | Static Pressure | | |
| 7 | Space Sensor Slide Offset or Remote BAS Reset of SAT Setpoint | | |
| VCM-X Expansion Module | | | |
| | Analog Inputs | Analog Outputs | Binary Inputs |
| 1 | Outdoor Humidity | Building Pressure VFD | Emergency Shutdown |
| 2 | Space/RA Humidity | Modulating Heating | Dirty Filter |
| 3 | Not Used | Modulating Cooling | Proof of Flow |
| 4 | Building Pressure | Return Air Damper | Remote Forced Occupied |
| 5 | | Return Air Bypass Damper | Remote Forced Heating |
| 6 | | | Remote Forced Cooling |
| 7 | | | Exhaust Hood On |
| 8 | | | Remote Forced Dehum. |
| 4 Binary Input Expansion Module | | | |
| | Binary Inputs | | |
| 1 | Emergency Shutdown | | |
| 2 | Dirty Filter | | |
| 3 | Proof of Flow | | |
| 4 | Remote Forced Occupied | | |
| 12 Relay Output Expansion Module | | | |
| | Relay Outputs | | |
| 1-1-2 | Configurable | | |

2.5 SOURCE QUALITY CONTROL

- A. Testing Agency: Engage qualified testing agency to evaluate the following in accordance with industry standards for each product, and to verify DDC system reliability specified in performance requirements:
 - 1. DDC controllers.
 - 2. Gateways.
 - 3. Routers.
- B. Products will be considered defective if they do not pass tests and inspections.
- C. Prepare test and inspection reports.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
 - 1. Verify compatibility with and suitability of substrates.
- B. Examine roughing-in for instruments installed in piping to verify actual locations of connections before installation.
- C. Examine roughing-in for instruments installed in duct systems to verify actual locations of connections before installation.
- D. Examine walls, floors, roofs, and ceilings for suitable conditions where product will be installed.
- E. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
- F. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 DDC SYSTEM INTERFACE WITH OTHER SYSTEMS AND EQUIPMENT

- A. Communication Interface to Equipment with Integral Controls:
 - 1. DDC system has communication interface with equipment having integral controls and having communication interface for remote monitoring or control.
 - 2. Equipment to Be Connected:
 - a. Air Handling Units
 - b. Condensing Units
 - c. Terminal Boxes
 - d. Exhaust Fans
 - e. Outside Air Dampers
 - f. Generator Status (on/off)

3.3 PREINSTALLATION INTEGRATION TESTING

- A. Perform the following pretesting of other systems and equipment integration with DDC system before field installation:
 - 1. Test all communications in a controlled environment to ensure connectivity.
 - 2. Load software and demonstrate functional compliance with each control sequence of operation indicated.
 - 3. Using simulation, demonstrate compliance with sequences of operation and other requirements indicated including, but not limited to, the following:
 - a. HVAC equipment controlled through DDC system, such as boilers, chillers, pumps, and air-handling units.
 - b. Equipment faults and system recovery with fault annunciation.
 - c. Analog and Boolean value alarming and annunciation.

4. Develop a method for testing interfaces before deployment.
5. Submit documentation supporting compliance upon request.

3.4 GENERAL INSTALLATION REQUIREMENTS

- A. Install products to satisfy more stringent of all requirements indicated.
- B. Install products level, plumb, parallel, and perpendicular with building construction.
- C. Support products, tubing, piping wiring, and raceways. Brace products to prevent lateral movement and sway or a break in attachment when subjected to force.
- D. If codes and referenced standards are more stringent than requirements indicated, comply with requirements in codes and referenced standards.
- E. Fabricate openings and install sleeves in ceilings, floors, roof, and walls required by installation of products. Before proceeding with drilling, punching, and cutting, check for concealed work to avoid damage. Patch, flash, grout, seal, and refinish openings to match adjacent condition.
- F. Firestop Penetrations Made in Fire-Rated Assemblies: Comply with NFPA and local requirements.
- G. Welding Requirements:
 1. Restrict welding and burning to supports and bracing.
 2. No equipment is cut or welded without approval. Welding or cutting will not be approved if there is risk of damage to adjacent Work.
 3. Welding, where approved, is to be by inert-gas electric arc process and is to be performed by qualified welders in accordance with applicable welding codes.
 4. If requested on-site, show satisfactory evidence of welder certificates indicating ability to perform welding work intended.
- H. Fastening Hardware:
 1. Wrenches, pliers, and other tools that damage surfaces of rods, nuts, and other parts are prohibited for work of assembling and tightening fasteners.
 2. Tighten bolts and nuts firmly and uniformly. Do not overstress threads by excessive force or by oversized wrenches.
 3. Lubricate threads of bolts, nuts, and screws with graphite and oil before assembly.
- I. If product locations are not indicated, install products in locations that are accessible and that will permit service and maintenance from floor, equipment platforms, or catwalks without removal of permanently installed furniture and equipment.
- J. Corrosive Environments:
 1. Avoid or limit use of materials in corrosive airstreams and environments including, but not limited to, the following:
 - a. Laboratory exhaust-air streams.
 - b. Process exhaust-air streams.

2. When conduit is in contact with a corrosive airstream and environment, use Type 316 stainless steel conduit and fittings or conduit and fittings that are coated with a corrosive-resistant coating that is suitable for environment. Comply with requirements for installation of raceways and boxes specified in Section 260533.13 "Conduits for Electrical Systems," Section 260533.16 "Boxes and Covers for Electrical Systems," and Section 260533.23 "Surface Raceways for Electrical Systems."
3. Where instruments are located in a corrosive airstream and are not already corrosive resistant from instrument manufacturer, field install products in NEMA 250, Type 4X instrument enclosure constructed of Type 316L stainless steel.

3.5 INSTALLATION OF CONTROL WIRE, CABLE, AND RACEWAY

- A. Comply with NECA 1.
- B. Wire and Cable Installation:
 1. Install cables with protective sheathing that is waterproof and capable of withstanding continuous temperatures of 90 deg C with no measurable effect on physical and electrical properties of cable.
 - a. Provide shielding to prevent interference and distortion from adjacent cables and equipment.
 2. Terminate wiring in a junction box.
 - a. Clamp cable over jacket in a junction box.
 - b. Individual conductors in the stripped section of cable is to be slack between the clamping point and terminal block.
 3. Terminate field wiring and cable not directly connected to instruments and control devices having integral wiring terminals using terminal blocks.
 4. Install signal transmission components in accordance with IEEE C2, REA Form 511a, NFPA 70, and as indicated.
 5. Use shielded cable to transmitters.
 6. Use shielded cable to temperature sensors.
 7. Perform continuity and meager testing on wire and cable after installation.
- C. Conduit Installation:
 1. Comply with Section 260533.13 "Conduits for Electrical Systems," Section 260533.16 "Boxes and Covers for Electrical Systems," and Section 260533.23 "Surface Raceways for Electrical Systems" for control-voltage conductors.
 2. Comply with Section 270528 "Pathways for Communications Systems" for balanced twisted pair cabling and optical fiber installation.

3.6 DDC SYSTEM I/O ADJUSTMENT, CALIBRATION, AND TESTING

- A. Calibrate each instrument installed that is not factory calibrated and provided with calibration documentation.
- B. Provide written description of proposed field procedures and equipment for calibrating each type of instrument. Submit procedures before calibration and adjustment.
- C. For each analog instrument, make three-point test of calibration for both linearity and accuracy.

- D. Equipment and procedures used for calibration to comply with instrument manufacturer's written instructions.
- E. Provide diagnostic and test equipment for calibration and adjustment.
 - 1. Use field testing and diagnostic instruments and equipment with an accuracy at least twice the instrument accuracy of instrument to be calibrated. For example, test and calibrate an installed instrument with accuracy of 1 percent using field testing and diagnostic instrument with accuracy of 0.5 percent or better.
- F. Calibrate each instrument in accordance with instruction manual supplied by instrument manufacturer.
- G. If after calibration the indicated performance cannot be achieved, replace out-of-tolerance instruments.
- H. Comply with field testing requirements and procedures indicated by ASHRAE's Guideline 11, "Field Testing of HVAC Controls Components," in the absence of specific requirements, and to supplement requirements indicated.
- I. Analog Signals:
 - 1. Check analog voltage signals using a precision voltage meter at zero, 50, and 100 percent.
 - 2. Check analog current signals using a precision current meter at zero, 50, and 100 percent.
 - 3. Check resistance signals for temperature sensors at zero, 50, and 100 percent of operating span using a precision-resistant source.
- J. Digital Signals:
 - 1. Check digital signals using a jumper wire.
 - 2. Check digital signals using an ohmmeter to test for contact making or breaking.
- K. Control Dampers:
 - 1. Stroke and adjust control dampers following manufacturer's recommended procedure, from 100 percent open to 100 percent closed and back to 100 percent open.
- L. Meters: Check meters at zero, 50, and 100 percent of Project design values.
- M. Sensors: Check sensors at zero, 50, and 100 percent of Project design values.
- N. Switches: Calibrate switches to make or break contact at set points indicated.
- O. Transmitters:
 - 1. Check and calibrate transmitters at zero, 50, and 100 percent of Project design values.
 - 2. Calibrate resistance temperature transmitters at zero, 50, and 100 percent of span using a precision-resistant source.

3.7 DDC SYSTEM CONTROLLER CHECKOUT

- A. Verify power supply.
 - 1. Verify voltage, phase, and hertz.

2. Verify that protection from power surges is installed and functioning.
 3. Verify that ground fault protection is installed.
 4. If applicable, verify if connected to UPS unit.
 5. If applicable, verify if connected to backup power source.
 6. If applicable, verify that power conditioning units are installed.
- B. Verify that wire and cabling are properly secured to terminals and labeled with unique identification.
- C. Verify that spare I/O capacity is provided.

3.8 DDC CONTROLLER I/O CONTROL LOOP TESTS

A. Testing:

1. Test every I/O point connected to DDC controller to verify that safety and operating control set points are as indicated and as required to operate controlled system safely and at optimum performance.
2. Test every I/O point throughout its full operating range.
3. Test every control loop to verify that operation is stable and accurate.
4. Adjust control loop proportional, integral, and derivative settings to achieve optimum performance while complying with performance requirements indicated. Document testing of each control loop's precision and stability via trend logs.
5. Test and adjust every control loop for proper operation according to sequence of operation.
6. Test software and hardware interlocks for proper operation. Correct deficiencies.
7. Operate each analog point at the following:
 - a. Upper quarter of range.
 - b. Lower quarter of range.
 - c. At midpoint of range.
8. Exercise each binary point.
9. For every I/O point in DDC system, read and record each value at operator workstation, at DDC controller, and at field instrument simultaneously. Value displayed at operator workstation, at DDC controller, and at field instrument must match.
10. Prepare and submit report documenting results for each I/O point in DDC system and include in each I/O point a description of corrective measures and adjustments made to achieve desired results.

3.9 DDC SYSTEM VALIDATION TESTS

- A. Perform validation tests before requesting final review of system. Before beginning testing, first submit Pretest Checklist and Test Plan.
- B. After review of Pretest Checklist and Test Plan, execute all tests and procedures indicated in plan.
- C. After testing is complete, submit completed Pretest Checklist.
- D. Pretest Checklist: Submit the following list with items checked off once verified:
 1. Detailed explanation for any items that are not completed or verified.

2. Required mechanical installation work is successfully completed and HVAC equipment is working correctly.
3. HVAC equipment motors operate below full-load amperage ratings.
4. Required DDC system components, wiring, and accessories are installed.
5. Installed DDC system architecture matches approved Drawings.
6. Control electric power circuits operate at proper voltage and are free from faults.
7. Required surge protection is installed.
8. DDC system network communications function properly, including uploading and downloading programming changes.
9. Using BACnet protocol analyzer, verify that communications are error free.
10. Each controller's programming is backed up.
11. Equipment, products, tubing, wiring cable, and conduits are properly labeled.
12. All I/O points are programmed into controllers.
13. Testing, adjusting, and balancing work affecting controls is complete.
14. Dampers and actuators zero and span adjustments are set properly.
15. Each control damper and actuator goes to failed position on loss of power.
16. Valves and actuators zero and span adjustments are set properly.
17. Each control valve and actuator goes to failed position on loss of power.
18. Meter, sensor, and transmitter readings are accurate and calibrated.
19. Control loops are tuned for smooth and stable operation.
20. View trend data where applicable.
21. Each controller works properly in standalone mode.
22. Safety controls and devices function properly.
23. Interfaces with fire-alarm system function properly.
24. Electrical interlocks function properly.
25. Operator workstations and other interfaces are delivered, all system and database software is installed, and graphics are created.
26. Record Drawings are completed.

E. Test Plan:

1. Prepare and submit validation Test Plan including test procedures for performance validation tests.
2. Address all specified functions of DDC system and sequences of operation in Test Plan.
3. Explain detailed actions and expected results to demonstrate compliance with requirements indicated.
4. Explain method for simulating necessary conditions of operation used to demonstrate performance.
5. Include Test Checklist to be used to check and initial that each test has been successfully completed.
6. Submit Test Plan documentation 10 business days before start of tests.

F. Validation Test:

1. Verify operating performance of each I/O point in DDC system.
 - a. Verify analog I/O points at operating value.
 - b. Make adjustments to out-of-tolerance I/O points.
 - 1) Identify I/O points for future reference.
 - 2) Simulate abnormal conditions to demonstrate proper function of safety devices.
 - 3) Replace instruments and controllers that cannot maintain performance indicated after adjustments.
2. Simulate conditions to demonstrate proper sequence of control.

3. Readjust settings to design values and observe ability of DDC system to establish desired conditions.
4. 24 hours after initial validation test, do as follows:
 - a. Re-check I/O points that required corrections during initial test.
 - b. Identify I/O points that still require additional correction and make corrections necessary to achieve desired results.
5. 24 Hours after second validation test, do as follows:
 - a. Re-check I/O points that required corrections during second test.
 - b. Continue validation testing until I/O point is normal on two consecutive tests.
6. Completely check out, calibrate, and test all connected hardware and software to ensure that DDC system performs according to requirements indicated.
7. After validation testing is complete, prepare and submit report indicating results of testing. For all I/O points that required correction, indicate how many validation re-tests it took to pass. Identify adjustments made for each test and indicate instruments that were replaced.

3.10 VERIFICATION OF DDC SYSTEM WIRELESS NETWORK

- A. DDC system Installer is to design wireless DDC system networks to comply with performance requirements indicated.
- B. Verify wireless network performance through field testing and document results in a field test report.
- C. Testing and verification of all wireless devices to include, but not be limited to, the following:
 1. Speed.
 2. Online status.
 3. Signal strength.

3.11 FINAL REVIEW

- A. Submit written request to Owner and Engineer when DDC system is ready for final review. State the following:
 1. DDC system has been thoroughly inspected for compliance with Contract Documents and found to be in full compliance.
 2. DDC system has been calibrated, adjusted, and tested and found to comply with requirements of operational stability, accuracy, speed, and other performance requirements indicated.
 3. DDC system monitoring and control of HVAC systems results in operation according to sequences of operation indicated.
 4. DDC system is complete and ready for final review.
- B. Upon receipt of written request for final review, Owner to start review within 10 business days and upon completion issue field report(s) documenting observations and deficiencies.
- C. Take prompt action to remedy deficiencies indicated in reviewer's field report(s) and submit second written request after all deficiencies have been corrected. Repeat process until no deficiencies are reported.

- D. Prepare and submit closeout submittals when no deficiencies are reported.
- E. Part of DDC system final review to include demonstration to parties participating in final review.
 - 1. Provide staff familiar with DDC system installed to demonstrate operation of DDC system during final review.
 - 2. Provide testing equipment to demonstrate accuracy and other performance requirements of DDC system that is requested by reviewers during final review.

3.12 ADJUSTING

- A. Occupancy Adjustments: When requested within 12 months from date of Substantial Completion, provide on-site assistance in adjusting system to suit actual occupied conditions. Provide up to 2 visits to Project during other-than-normal occupancy hours for this purpose.

3.13 DEMONSTRATION

- A. Engage a factory-authorized service representative with complete knowledge of Project-specific system installed to train Owner's maintenance personnel to adjust, operate, and maintain DDC system.

B. Extent of Training:

- 1. Base extent of training on scope and complexity of DDC system indicated and training requirements indicated. Provide extent of training required to satisfy requirements indicated even if more than minimum training requirements are indicated.
- 2. Inform Owner of anticipated training requirements if more than minimum training requirements are indicated.
- 3. Minimum Training Requirements:
 - a. Provide not less than 10 days of training total.
 - b. Stagger training over multiple training classes to accommodate Owner's requirements. All training to occur before end of warranty period.

C. Training Schedule:

- 1. Schedule training with Owner 20 business days before expected Substantial Completion.
- 2. Schedule training to provide Owner with at least 20 business days of notice in advance of training.
- 3. Training to occur within normal business hours at mutually agreed on time. Unless otherwise agreed to, training to occur Monday through Friday, except on U.S. Federal holidays, with two morning sessions and two afternoon sessions.
- 4. Provide staggered training schedule as requested by Owner.

D. Attendee Training Manuals:

- 1. Provide each attendee with color hard copy of all training materials and visual presentations.
- 2. Organize hard-copy materials in three-ring binder with table of contents and individual divider tabs marked for each logical grouping of subject matter. Organize material to provide space for attendees to take handwritten notes within training manuals.
- 3. In addition to hard-copy materials included in training manual, provide each binder with a sleeve or pocket that includes DVD or flash drive with PDF copy of all hard-copy materials.

E. Instructor Requirements:

1. One or multiple qualified instructors, as required, to provide training.
2. Use instructors who have provided not less than 5 years of instructional training on not less than 5 past projects with similar DDC system scope and complexity to DDC system installed.

END OF SECTION 230923

VENDOR QUALIFICATIONS

Qualification Data:

- a. Resume of project manager assigned to Project.
- b. Resumes of application engineering staff assigned to Project.
- c. Resumes of installation and programming technicians assigned to Project.
- d. Resumes of service technicians assigned to Project.
- e. Brief description of past project including physical address, floor area, number of floors, building system cooling and heating capacity, and building's primary function.
- f. Description of past projects, noting similarities to Project scope and complexity indicated.
- g. Names of staff assigned to past project that will also be assigned to execute work of this Project.
- h. Owner contact information for past project including name, phone number, and email address.
- i. Contractor contact information for past project including name, phone number, and email address.
- j. Architect and Engineer contact information for past project including name, phone number, and email address.

A. System Manufacturer Qualifications:

1. Nationally recognized manufacturer of DDC systems and products.
2. DDC systems with similar requirements to those indicated for a continuous period of five years within time of bid.
3. DDC systems and products that have been successfully tested and in use on at least five past projects.
4. Having complete published catalog literature, installation, operation, and maintenance manuals for all products intended for use.
5. Having full-time in-house employees for the following:
 - a. Product research and development.
 - b. Product and application engineering.
 - c. Product manufacturing, testing, and quality control.
 - d. Technical support for DDC system installation training, commissioning, and troubleshooting of installations.
 - e. Owner operator training.

B. System Provider Qualifications:

1. Authorized representative of, and trained by, DDC system manufacturer.
2. Demonstrate past experience with installation of DDC system products being installed for period within five consecutive years before time of bid.
3. Demonstrate past experience on five projects of similar complexity, scope, and value.
4. Demonstrate past experience of each individual assigned to Project.
5. Staffing resources of competent and experienced full-time employees that are assigned to execute work according to schedule.
6. Service and maintenance staff assigned to support Project during warranty period.
7. Product parts inventory to support ongoing DDC system operation for a period of not less than five years after Substantial Completion.

8. DDC system manufacturer's backing to take over execution of the Work if necessary to comply with requirements indicated. Include Project-specific written letter, signed by manufacturer's corporate officer, if requested.

C. Demonstration

Instructor Requirements:

1. One or multiple qualified instructors, as required, to provide training.
2. Use instructors who have provided not less than 5 years of instructional training on not less than 5 past projects with similar DDC system scope and complexity to DDC system installed.

Other Requirements

This Contractor shall provide a Project Manager with a minimum of 3 years' experience with installation and set-up of the equipment of the Bidder/Manufacturer they represent

EVALUATION CRITERIA

Award shall be made to the responsible Offeror who is determined to be the best match. Submission of Proposal serves as Offeror's acceptance of the evaluation criteria and Offeror's recognition that subjective judgments must be made by the Evaluation Committee:

1. Firm Experience, Qualifications, Capacity, and Resources30%
Firm provides qualifications, competence, and experience of staff to be assigned to project. Firm demonstrates:
 1. Understanding of scope of the Project.
 2. Ability to meet the qualifications and compliance requirements listed herein, including that firm meets the appropriate state licensing requirements in Texas.
 3. Specialized experience or technical expertise in connection with the scope of services to be provided and complexity of the project, which includes a thorough description of other successful projects, that demonstrate the firm's ability to carry out the scope of work similar to the one described in this RFP.
 4. Knowledge of local and national building codes
 5. Capability to provide services, meeting the quality requirements, in a timely manner.
 6. Sufficient staffing size and capacity of the organization to perform the work within time limitations, taking into consideration the current and projected planned workload of the firm.
 7. Ability to perform requested services for similar projects of scope and scale by providing five (5) recent examples of projects completed on budget and on time.
 8. Sufficient financial capacity and acceptable business practices.

2. Past Performance30%
Firm demonstrates past performance in terms of cost control, quality of work, and compliance with performance schedules. Firm demonstrates record of:
 1. Conforming to contract requirements and to standards of good workmanship.
 2. Forecasting and controlling costs.
 3. Adhering to schedules, including the administrative aspects of performance.
 4. Providing reasonable and cooperative behavior and commitment to customer satisfaction.
 5. Reporting into database (if applicable)
 6. Integrity and business ethics; and
 7. Business-like concern for the interest of the customer

3. Organization & Project Methodology15%
Firm sufficiently describes:
 1. How the services will be provided and how they will be supported for completing the described work in this RFP.
 2. A comprehensive plan for completing a project using a representative project, describe in detail the process, procedures, and methodology for completing the project from planning through construction.

4. Cost15%

1. Rank order Cost, adjusted for Duration deltas.

5. HUB / MWBE and Section 3 Utilization Commitment10%
Firm demonstrates commitment or ability to integrate HUB / MWBE and Section 3 participation into the plan for accomplishing the work described in this RFP.
Offerors which demonstrate a greater commitment to making a good faith effort in utilizing HUB / MWBE and Section 3 participation for this contract opportunity will receive higher scores.

ATTACHMENT A REQUIRED DOCUMENTS

Respondents shall submit One (1) single-sided unbound original, and four (4) single-sided copies, of the required documents listed in this section.

No other documentation (solicitation instructions, maps, drawings addenda, etc.) is required unless superseded by instructions in the Special Provisions.

The sealed Required Documents must be submitted no later than 2:15 P.M. CST, on Thursday, March 23, 2023, to the following:

Rufus G. Crowder, CPPO CPPB

Purchasing Agent
County of Galveston
722 Moody Avenue (21st Street), Fifth (5th) Floor
Galveston, TX 77550

The timestamp clock located in the Purchasing Agent's office shall serve as the official time-keeping piece for this solicitation process. Any proposals received after 2:15 P.M. CST on the specified date will be returned unopened.

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COST ESTIMATE FOR BID TABULATION

Building Automation Systems (BAS) Replacement

Project:
 Job No:
 Prepared By: iGET Services LLC
 Date: 2/9/2023

| Summary of Estimate | | |
|----------------------|-----|--------|
| Stage: | | Bid |
| Total Amount: | | \$0.00 |
| Contingencies: | 10% | \$0.00 |
| Grand Total Project: | | \$0.00 |

| ITEM NO. | Contract Item No. | SPEC NO. | DESCRIPTION | UNIT | QUANTITY | UNIT PRICE | AMOUNT |
|---|-------------------|----------|--|------|----------|------------|---------------|
| A Mid County Annex | | | | | | | |
| 1 | | | Front End Items | | | | |
| 2 | | | JACE (Java Application Control Engine) | | | | |
| 3 | | | Software | | | | |
| 4 | | | Unit Controllers | | | | |
| 5 | | | Sensors | | | | |
| 6 | | | Wiring | | | | |
| 7 | | | Labor | | | | |
| 8 | | | Training | | | | |
| Subtotal of Item A | | | | | | | \$0.00 |
| B OEM Building | | | | | | | |
| 9 | | | Front End Items | | | | |
| 10 | | | JACE (Java Application Control Engine) | | | | |
| 11 | | | Software | | | | |
| 12 | | | Unit Controllers | | | | |
| 13 | | | Sensors | | | | |
| 14 | | | Wiring | | | | |
| 15 | | | Labor | | | | |
| 16 | | | Training | | | | |
| Subtotal of Item B | | | | | | | \$0.00 |
| C Wayne Johnson Community Center | | | | | | | |
| 17 | | | Front End Items | | | | |
| 18 | | | JACE (Java Application Control Engine) | | | | |
| 19 | | | Software | | | | |
| 20 | | | Unit Controllers | | | | |
| 21 | | | Sensors | | | | |
| 22 | | | Wiring | | | | |
| 23 | | | Labor | | | | |
| 24 | | | Training | | | | |
| Subtotal of Item C | | | | | | | \$0.00 |
| D Agrilife Building | | | | | | | |
| 25 | | | Front End Items | | | | |
| 26 | | | JACE (Java Application Control Engine) | | | | |
| 27 | | | Software | | | | |
| 28 | | | Unit Controllers | | | | |
| 29 | | | Sensors | | | | |
| 30 | | | Wiring | | | | |
| 31 | | | Labor | | | | |
| 32 | | | Training | | | | |
| Subtotal of Item D | | | | | | | \$0.00 |

COST ESTIMATE FOR BID TABULATION

Building Automation Systems (BAS) Replacement

Project:
 Job No:
 Prepared By: iGET Services LLC
 Date: 2/9/2023

| Summary of Estimate | | |
|----------------------|-----|--------|
| Stage: | | Bid |
| Total Amount: | | \$0.00 |
| Contingencies: | 10% | \$0.00 |
| Grand Total Project: | | \$0.00 |

| ITEM NO. | Contract Item No. | SPEC NO. | DESCRIPTION | UNIT | QUANTITY | UNIT PRICE | AMOUNT |
|---|-------------------|----------|--|------|----------|------------|---------------|
| E Eddie Janek | | | | | | | |
| 33 | | | Front End Items | | | | |
| 34 | | | JACE (Java Application Control Engine) | | | | |
| 35 | | | Software | | | | |
| 36 | | | Unit Controllers | | | | |
| 37 | | | Sensors | | | | |
| 38 | | | Wiring | | | | |
| 39 | | | Labor | | | | |
| 40 | | | Training | | | | |
| Subtotal of Item E | | | | | | | \$0.00 |
| F Wayne Johnson Community Center | | | | | | | |
| 41 | | | Front End Items | | | | |
| 42 | | | JACE (Java Application Control Engine) | | | | |
| 43 | | | Software | | | | |
| 44 | | | Unit Controllers | | | | |
| 45 | | | Sensors | | | | |
| 46 | | | Wiring | | | | |
| 47 | | | Labor | | | | |
| 48 | | | Training | | | | |
| Subtotal of Item F | | | | | | | \$0.00 |
| G Popovich Annex | | | | | | | |
| 49 | | | Front End Items | | | | |
| 50 | | | JACE (Java Application Control Engine) | | | | |
| 51 | | | Software | | | | |
| 52 | | | Unit Controllers | | | | |
| 53 | | | Sensors | | | | |
| 54 | | | Wiring | | | | |
| 55 | | | Labor | | | | |
| 56 | | | Training | | | | |
| Subtotal of Item G | | | | | | | \$0.00 |
| H ** EXTRA WORK ITEMS | | | | | | | |
| 57 | | | | | | | |
| 58 | | | | | | | |
| 59 | | | | | | | |
| 60 | | | | | | | |
| 61 | | | | | | | |
| 62 | | | | | | | |
| 63 | | | | | | | |
| 64 | | | | | | | |
| Subtotal of Item H | | | | | | | \$0.00 |



Prohibition on Contracts with Certain Companies

Prohibition on contracts with certain companies per Government Code 2252.151 Definitions:

(1) "Company" has the meaning assigned by Section 806.001.

(2) "Foreign terrorist organization" means an organization designated as a foreign terrorist organization by the United States secretary of state as authorized by 8 U.S.C. Section 1189.

(3) "Governmental contract" means a contract awarded by a governmental entity for general construction, an improvement, a service, or a public works project for a purchase of supplies, materials, or equipment. The term includes a contract to obtain a professional or consulting service subject to Government Code, Chapter 2254.

(4) "Governmental entity" has the meaning assigned by Government Code, Section 2252.001.

Section 2252.152 – CONTRACTS WITH COMPANIES ENGAGED IN BUSINESS WITH IRAN, SUDAN, OR FOREIGN TERRORIST ORGANIZATION PROHIBITED. A governmental entity may not enter into a governmental contract with a company that is identified on a list prepared and maintained under Section 806.051, 807.051, or 2252.153.

Section 2252.153 – Listed Companies. The comptroller shall prepare and maintain, and make available to each governmental entity, a list of companies known to have contracts with or provide supplies or services to a foreign terrorist organization.

Pursuant to Chapter 2252, Texas Government Code, VENDOR represents and certifies that, at the time of execution of this Agreement, neither Vendor, nor any wholly owned subsidiary, majority-owned subsidiary, parent company or affiliate of the same (i) engages in business with Iran, Sudan, or any foreign terrorist organization as described in Chapters 806 or 807 of the Texas Government Code, or Subchapter F of Chapter 2252 of the Texas Government Code, or (ii) is a company listed by the Texas Comptroller of Public Accounts under Sections 806.051, 807.051, or 2252.153 of the Texas Government Code. The term "foreign terrorist organization" in this paragraph has the meaning assigned to such term in Section 2252.151 of the Texas Government Code.

Individual by oath swears that the following statements are factual and true:

1. Individual is authorized by the Contractor to make this statement for the Contractor.
2. Individual has read and is fully aware of the facts stated in this statement.
3. Individual can read and comprehend the English language.
4. As required by GOVERNMENT CODE, CHAPTER 2252.152, CONTRACTOR hereby verifies that it is not identified on a list prepared and maintained under Section 806.051, 807.051, or 2252.153, or contracting with a company doing business with Iran, Sudan, or any foreign terrorist organizations.

Date: _____

Business Name of Contractor: _____

Company Address: _____

County of Contractor: _____

Name of Individual: _____

Signature of Individual: _____



Prohibition on Contracts with Companies Boycotting Israel

Prohibition on contracts with companies boycotting Israel per Government Code 2271.001 Definitions:

- (1) "Boycott Israel" has the meaning assigned by Section 808.001.
- (2) "Company" has the meaning assigned by Section 808.001; except that the term does not include a sole proprietorship.
- (2) "Governmental entity" has the meaning assigned by Government Code, Section 2251.001.

PROVISION REQUIRED IN CONTRACT. (a) This section applies only to a contract that:

- (1) is between a governmental entity and a company with 10 or more full-time employees; and
- (2) has a value of \$100,000 or more that is to be paid wholly or partly from public funds of the governmental entity.

(b) A governmental entity may not enter into a contract with a company for goods or services unless the contract contains a written verification from the company that it:

- (1) does not boycott Israel; and
- (2) will not boycott Israel during the term of the contract.

As required by GOVERNMENT CODE, CHAPTER 2271, CONTRACTOR hereby verifies that it does not boycott Israel and will not boycott Israel throughout the term of this Agreement. For the purposes of this verification, "Boycott Israel" means refusing to deal with, terminating business activities, or otherwise taking any action that is intended to penalize, inflict economic harm on, or limit commercial relations specifically with Israel, or a person or entity doing business in Israel or in an Israeli-controlled territory, but does not include an action made for ordinary business purposes.

Individual by oath swears that the following statements are factual and true:

1. Individual is authorized by the Contractor to make this statement for the Contractor.
2. Individual has read and is fully aware of the facts stated in this statement.
3. Individual can read and comprehend the English language.
4. In accordance with Texas Government Code Section 2271.002, this company does not boycott Israel and will not boycott Israel during the term of this contract/agreement.

Date: _____

Business Name of Contractor: _____

Company Address: _____

County of Contractor: _____

A Individual: _____

Signature of Individual: _____

CERTIFICATION REGARDING LOBBYING
(31 U.S.C.A. § 1352)
This Certification must be completed, signed, dated and
returned to the Galveston County Purchasing Agent

Procurement Number and Description:

RFP #B231015, County Building Automation Systems

Proposer **CERTIFIES**, to the best of its knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the proposer, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the proposer shall complete and submit **Standard Form LLL**, "Disclosure Form to Report Lobbying", in accordance with its instructions.
3. Proposer shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

Name of Organization/Corporation: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Signature of Authorized Signatory for Proposer: _____ Date Signed: _____

Title of Authorized Signatory of Proposer: _____

State of Texas §
County of Galveston §

NON-COLLUSION AFFIDAVIT

Before me, the undersigned notary, on this day personally appeared _____ (Affiant), whom being first duly sworn, deposes and certifies that:

- Affiant is the _____ of _____, that
(Individual, Partner, Corporate Officer) (Name of Proposer)
submitted the attached Bid/Proposal in **RFP #B231015, County Building Automation Systems**
- Affiant is a duly authorized representative of Proposer and is authorized to make this Non-Collusion Affidavit;
- The attached Proposal/Bid is genuine and is not a collusive or sham Proposal/Bid;
- The attached Proposal/Bid has been independently arrived at without collusion with any other bidder, proposer, person, firm, competitor, or potential competitor;
- Bidder/Proposer has not colluded, conspired, connived or agreed, directly or indirectly, with any other bidder, proposer, person, firm, competitor, or potential competitor, to submit a collusive or sham bid or that such other bidder, proposer, person, firm, competitor, or potential competitor shall refrain from bidding/proposing;
- Bidder/Proposer has not in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other bidder, proposer, person, firm, competitor, or potential competitor to fix the price or prices in the attached Bid/Proposal or of the bid/proposal any other bidder/proposer;
- Bidder/Proposer has not in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other bidder, proposer, person, firm, competitor, or potential competitor to fix the overhead, profit or cost element of the Bid/Proposal price or prices of any other bidder/proposer, or to secure through any collusion, conspiracy, connivance, or unlawful agreement any advantage against Galveston County or any person interested in the proposed contract;
- Affiant has not in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other bidder, proposer, person, firm, competitor, or potential competitor, paid or agreed to pay any other bidder, proposer, person, firm, competitor, or potential competitor any money or anything of value in return for assistance in procuring or attempting to procure a contract or in return for establishing the price or prices in the attached Bid/Proposal or the bid/proposal of any other Bidder/Proposer; and
- Affiant certifies that Affiant is fully informed regarding the accuracy of the statements contained herein, and under penalties of perjury, certifies and affirms the truth of the statements herein, such penalties being applicable to the Bidder/Proposer as well as to Affiant signing on its behalf.

Signature of Affiant

SWORN TO and SUBSCRIBED before me this _____ day of _____, ..

Notary Public

My Commission Expires: _____

CONTRACTOR'S CERTIFICATION of RECOVERED MATERIAL

ACKNOWLEDGEMENT

I, _____ (Principal's Name) _____ of _____ (Company Name) _____, (hereinafter called "Contractor"), acknowledge the recovered material bidding requirements found in 2 CFR 200.322 that requires the Contractor to procure those items designated in the guidelines of the Environmental Protection Agency (EPA) at 40 CFR 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition.

I also acknowledge that this requirement shall apply to items purchased (1) where the Contractor purchases in excess of \$10,000 of the item under this contract; or (2) where during the preceding fiscal year, the value of the quantity acquired was in excess of \$10,000.

Finally, I acknowledge the attached list of recovered materials included in the bid documents. (For up-to-date listing, please go to <https://www.epa.gov/smm/comprehensive-procurement-guideline-cpg-program#directory>)

Printed Name and Title

Signature

Date

USE OF RECOVERED MATERIAL

Please check one:

- Recovered materials are included in this bid:
Materials included _____
- Recovered materials are not reasonably available in a reasonable period of time.
- Recovered materials fail to meet reasonable performance standards, which are determined on the basis of the guidelines of the National Institute of Standards and Technology, if applicable.
- Recovered materials are only available at an unreasonable price.

Printed Name and Title

Signature

Date

**PROPOSAL FORMS
COUNTY BUILDING AUTOMATION SYSEMS
COUNTY OF GALVESTON, TEXAS**

By signing here, the firm does hereby attest that it has fully read the instructions, conditions and general and special provisions and understands them.

THE COMPANY OF: _____

ADDRESS: _____

FEIN (TAX ID): _____

The following shall be returned with your proposal. Failure to do so may be ample cause for rejection of the proposal as non-responsive. It is the responsibility of the Proposer to ensure that proposer has received all addenda.

| Items: | Confirmed (X): |
|--|-------------------------------------|
| 1. References (if required) | _____ |
| 2. Addenda, if any | #1 _____ #2 _____ #3 _____ #4 _____ |
| 3. One (1) original and four (4) copies of submittal | _____ |
| 4. Proposal Form | _____ |
| 5. Vendor Qualification Packet | _____ |
| 6. Line Item Details | _____ |
| 7. Non-Collusion Affidavit | _____ |
| 8. Payment Terms: | _____ net 30 _____ other |
| 9. Contracts with Certain Companies | _____ |
| 10. Companies Boycotting Israel | _____ |
| 11. Bid Tabulation Sheets | _____ |
| 12. Certification of Recovered Materials Form | _____ |

Person to contact regarding this bid: _____

Title: _____ Phone: _____ Fax: _____

E-mail address: _____

Name of person authorized to bind the Firm: _____

Signature: _____ Date: _____

Title: _____ Phone: _____ Fax: _____

E-mail address: _____

**PROPOSAL FORMS
COUNTY BUILDING AUTOMATION SYSTEMS
GALVESTON COUNTY, TEXAS**

Proposer shall use this form to provide the information for notice.

1. Contact information for notice:

Name: _____

Address: _____

Telephone Number: _____ Facsimile number: _____

2. If a copy of notice is requested, please complete below:

Name: _____

Address: _____

Telephone Number: _____ Facsimile number: _____

3. If second or more copies are requested for notice, please supplement this form and clearly mark the supplement as "Supplementary Notice Information."

Proposer to submit reference information. Proposer shall use this form to provide minimum required reference information. If Proposer wishes to provide more than the minimum, Proposer should supplement this form and should clearly mark the supplement as "Supplementary Reference Information."

1. References who can attest to the Proposer's capability to carry out the requirements set forth in this bid:

Business Name of Organization: _____

Name of Person: _____

Title of Individual within Organization, if applicable _____

Business address: _____

Telephone number: _____ Facsimile number: _____

Business Name of Organization: _____

Name of Person: _____

Title of Individual within Organization, if applicable _____

Business address: _____

Telephone number: _____ Facsimile number: _____

Business Name of Organization: _____

Name of Person: _____

Title of Individual within Organization, if applicable _____

Business address: _____

Telephone number: _____ Facsimile number: _____

PROPOSAL FORMS
COUNTY BUILDING AUTOMATION SYSTEMS
GALVESTON COUNTY, TEXAS

References of major supplier of Proposer who can speak to the financial capability of the Proposer to carry out the requirements set forth in this bid:

1. Business Name of Supplier _____
Name of Person: _____
Title of Individual within business: _____
Business address: _____

Telephone number: _____ Facsimile number: _____

2. Business Name of Supplier _____
Name of Person: _____
Title of Individual within business: _____
Business address: _____

Telephone number: _____ Facsimile number: _____

3. Business Name of Supplier _____
Name of Person: _____
Title of Individual within business: _____
Business address: _____

Telephone number: _____ Facsimile number: _____

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County of Galveston

ACKNOWLEDGMENT AND CERTIFICATION REGARDING DEBARMENT,
SUSPENSION, AND OTHER INELIGIBILITY

Executive Orders 12549 & 12689 Certification, Debarment and Suspension

Solicitation Number: RFP #B231015

Solicitation Title: County Building Automation Systems

Contractor hereby CERTIFIES that:

Contractor, and all of its principals, is not presently debarred, suspended, proposed for debarment, proposed for suspension, or declared ineligible under Executive Order 12549 or Executive Order 12689, Debarment and Suspension, and is not in any other way ineligible for participation in Federal or State assistance programs;

Contractor, and all of its principals, were not and have not been debarred, suspended, proposed for debarment, proposed for suspension, or declared ineligible under Executive Order 12549 or Executive Order 12689, Debarment and Suspension, and were not and have not been in any other way ineligible for participation in Federal or State assistance programs at the time its' proposal was submitted in the procurement identified herein and at any time since submission of its' proposal;

Contractor has included, and shall continue to include, this certification in all contracts between itself and any sub-contractors in connection with services performed under **this contract; and**

Contractor shall notify Galveston County in writing immediately, through written notification to the Galveston County Purchasing Agent, if Contractor is not in compliance with Executive Order 12549 or 12689 during the term of its contract with Galveston County.

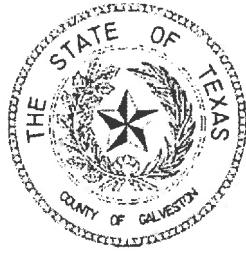
Contractor **Represents** and **Warrants** that the individual executing this Acknowledgment and Certification on its behalf has the full power and authority to do so and can legally bind the Contractor hereto.

Name of Business

Date

By: _____
Signature

Printed Name & Title



County of Galveston Purchasing Department Vendor Qualification Packet

(rev. 1.4, September 28, 2017)

All interested parties seeking consideration for qualified vendor status with the County of Galveston should complete and return only the following forms to:

Galveston County Purchasing Department
722 Moody Avenue, (21st Street), 5th Floor
Galveston, Texas 77550
(409) 770-5371 office
(409) 621-7987 fax

- PEID Form:** Person /Entity Information Data
- W -9 Form:** Request for Taxpayer Identification Number and Certification
(please note that the included form may not be the latest revised form issued by the Internal Revenue Service. Please check the IRS website at <http://www.irs.gov/pub/irs-rd/ffw9.pdf> for the latest revision of this form.)
- CIQ Form:** Conflict of Interest Questionnaire
(please note that the included form may not be the latest revised form issued by the State of Texas Ethics Commission. Please check the Texas Ethics Commission website at http://www.ethics.state.tx.us/whatsnew/conflict_forms.htm for the latest revision of this form. Please note that Galveston County Purchasing Agent is not responsible for the filing of this form with the Galveston County Clerk per instructions of the State of Texas Ethics Commission).
- Debarment:** **CERTIFICATION REGARDING DEBARMENT, SUSPENSION, PROPOSED DEBARMENT, AND OTHER RESPONSIBILITY MATTERS & REQUIREMENT TO REGISTER IN SAM**
*Vendors/contractor certifies that neither it, nor any of its Principals, are presently debarred, suspended, proposed for debarment, disqualified, excluded, or in any way declared ineligible for the award of contracts by any Federal agency. Vendor agrees that it shall refund Galveston County for any payments made to Contractor while ineligible. Vendor acknowledges that Contractor's uncured failure to perform under any agreement with the County of Galveston, if such should occur, may result in Contractor being debarred from performing additional work for the County, the respecting State Agency administering the grant funding the contract, if applicable, the State, FEMA or HUD (as applicable), and other Federal and State entities. Further, Vendor has executed the Certification Regarding Debarment, Suspension, Proposed Debarment, and Other Responsibility Matters and returned the fully completed and executed original certification with the submission of this Vendor Qualification Packet. **The truthful and fully completed and executed original of the Certification Regarding Debarment, Suspension, Proposed Debarment, and Other Responsibility Matters must be included with the submission of this Vendor Qualification Packet and is a mandatory requirement to become a vendor of Galveston County. Vendor's failure to include the fully completed and executed original of this Certification shall be considered non-compliant with the requirements of this vendor qualification request and grounds for the rejection of vendor's request. Vendor shall immediately notify the County Purchasing Agent if it becomes debarred or suspended, placed on***

the Consolidated List of Debarred Contractors, or in any other way becomes ineligible for award of contract by any Federal agency. This Certification is a material fact relied upon by Galveston County; if it is later determined that the vendor did not comply with 2 C. F. R. Part 180 and 2 C.F.R. Part 3000, in addition to the remedies available to Galveston County and the State agency administering a grant, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment of contractor. If the contract to be awarded pursuant to a Galveston County procurement effort involves the use of Federal funds, then vendor must also be registered in the Federal Contractor Registry through the System for Award Management (SAM) to be eligible for award of contract pursuant to the procurement.

Information regarding the SAM is available at:

<http://federalcontractorregistry.com/?gclid=CIGlhf2rr8wCFYkCaQoducANZw> or at

<http://sam.gov/portal/SAM/#1>.

No contract involving the use of Federal funds may be awarded to any vendor unless and until such registration is current and in good standing under SAM. Successful vendors must maintain SAM registration throughout the entire term of any contractual agreement with the County. If a contract involves the use of Federal funds, then vendor must enclose proof of such SAM registration within its response, which is also a mandatory requirement of County procurement policy; failure to enclose such proof shall be considered non-compliant with the requirements of any procurement effort and grounds for the rejection of vendor's response to any procurement efforts (i.e., bid, proposal, or qualifications statement, as applicable).

Direct Deposit: Direct Deposit Authorization Form – Temporarily suspended until further notice

Certificate(s) of Insurance: If the person or entity seeking qualified vendor status with the County will be performing work at or on any County owned facility and/or property, Certificate(s) of Insurance are required to be submitted prior to performing any work.

Insurance requirements are as follows:

Public Liability and Property Damage Insurance:

Successful vendor agrees to keep in full force and effect, a policy of public liability and property damage insurance issued by a casualty company authorized to do business in the State of Texas, and in standard form approved by the Board of Insurance Commissioners of the State of Texas, with coverage provisions insuring the public from any loss or damage that may arise to any person or property by reason of services rendered by vendor. Vendor shall at its own expense be required to carry the following minimum insurance coverages:

1. For damages arising out of bodily injury to or death of one person in anyone occurrence - one hundred thousand and no/100 dollars (\$100,000.00);
2. For damages arising out of bodily injury to or death of two or more persons in anyone occurrence - three hundred thousand and no/100 dollars (\$300,000.00); and
3. For injury to or destruction of property in anyone occurrence - one hundred thousand and no/100 dollars (\$100,000.00).

This insurance shall be either on an occurrence basis or on a claims made basis. Provided however, that if the coverage is on a claims made basis, then the vendor shall be required to purchase, at the termination of this agreement, tail coverage for the County for the period of the County's relationship with the vendor under this agreement. Such coverage shall be in the amounts set forth in subparagraphs (1), (2), and (3) above.

Worker's Compensation Insurance:

Successful vendor shall also carry in full force Workers' Compensation Insurance policy(ies), if there is more than one employee, for all employees, including but not limited to full time, part time, and emergency employees employed by the vendor. Current insurance certificates certifying that such policies as specified above are in full force and effect shall be furnished by the vendor to the County.

The County of Galveston shall be named as additional insured on policies listed in subparagraphs above and shall be notified of any changes to the policy(ies) during the contractual period.

Insurance is to be placed with insurers having a Best rating of no less than A. The vendor shall furnish the County with certificates of insurance and original endorsements affecting coverage required by these insurance clauses. The certificates and endorsements for each insurance policy are to be signed by a person authorized by the insurer to bind coverage on its behalf. The vendor shall be required to submit annual renewals for the term of any contractual agreement, purchase order or term contract, with Galveston County prior to expiration of any policy.

In addition to the remedies stated herein, the County has the right to pursue other remedies permitted by law or in equity.

The County agrees to provide vendor with reasonable and timely notice of any claim, demand, or cause of action made or brought against the County arising out of or related to utilization of the property. Vendor shall have the right to defend any such claim, demand, or cause of action at its sole cost and expense and within its sole and exclusive discretion. The County agrees not to compromise or settle any claim or cause of action arising out of or related to the utilization of the property without the prior written consent of the vendor.

In no event shall the County be liable for any damage to or destruction of any property belonging to the vendor unless specified in writing and agreed upon by both parties.

Procurement Policy - Special Note:

Understand that it is, according to Texas Local Government Code, Section 262.011, Purchasing Agents, subsections (d), (e), and (f), the sole responsibility of the Purchasing Agent to supervise all procurement transactions.

Therefore, be advised that all procurement transactions require proper authorization in the form of a Galveston County purchase order from the Purchasing Agent's office prior to commitment to deliver supplies, materials, equipment, including contracts for repair, service, and maintenance agreements. Any commitments made without proper authorization from the Purchasing Agent's office, pending Commissioners' Court approval, may become the sole responsibility of the individual making the commitment including the obligation of payment.

Code of Ethics - Statement of Purchasing Policy:

Public employment is a public trust. It is the policy of Galveston County to promote and balance the objective of protecting the County's integrity and the objective of facilitating the recruitment and retention of personnel needed by Galveston County. Such policy is implemented by prescribing essential standards of ethical conduct without creating unnecessary obstacles to entering public office.

Public employees must discharge their duties impartially so as to assure fair competitive access to governmental procurement by responsible contractors. Moreover, they should conduct themselves in such a manner as to foster public confidence in the integrity of the Galveston County procurement organization.

To achieve the purpose of these instructions, it is essential that those doing business with Galveston County also observe the ethical standards prescribed here.

General Ethical Standards: It shall be a breach of ethics to attempt to realize personal gain through public employment with Galveston County by any conduct inconsistent with the proper discharge of the employee's duties.

It shall be a breach of ethics to attempt to influence any public employee of Galveston County to breach the standards of ethical conduct set forth in this code.

It shall be a breach of ethics for any employee of Galveston County to participate directly or indirectly in procurement when the employee knows that:

- The employee or any member of the employee's immediate family has a financial interest pertaining to the procurement.
- A business or organization in which the employee, or any member of the employee's immediate family, has a financial interest pertaining to the procurement.
- Any other person, business or organization with which the employee or any member of the employee's immediate family is negotiating or has an arrangement concerning prospective employment is involved in the procurement.

Gratuities: It shall be a breach of ethics to offer, give or agree to give any employee of Galveston County, or for any employee or former employee of Galveston County to solicit, demand, accept or agree to accept from another person, a gratuity or an offer of employment in connection with any decision, approval, disapproval, recommendation, preparation of any part of a program requirement or purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, auditing, or in any other advisory capacity in any program requirement or a contract or subcontract, or to any solicitation or proposal therefore pending before this government.

Kickbacks: It shall be a breach of ethics for any payment, gratuity or offer of employment to be made by or on behalf of a subcontractor under a contract to the prime contractor or higher tier subcontractor for any contract for Galveston County, or any person associated therewith, as an inducement for the award of a subcontract or order.

Contract Clause: The prohibition against gratuities and kickbacks prescribed above shall be conspicuously set forth in every contract and solicitation by Galveston County.

Confidential Information: It shall be a breach of ethics for any employee or former employee of Galveston County to knowingly use confidential information for actual or anticipated personal gain, or for the actual or anticipated gain of any person.

Questions/Concerns:

If you have any questions or concerns regarding the information or instructions contained within this packet, please contact any member of the Purchasing Department staff at **(409) 770-5371**.

CONFLICT OF INTEREST DISCLOSURE REPORTING

Proposer may be required under Chapter 176 of the Texas Local Government Code to complete and file a conflict of interest questionnaire (CIQ Form). If so, the completed CIQ Form must be filed with the County Clerk of Galveston County, Texas.

If Proposer has an employment or other business relationship with an officer of Galveston County or with a family member of an officer of Galveston County that results in the officer or family member of the officer receiving taxable income that exceeds \$2,500.00 during the preceding 12-month period, then Proposer **MUST** complete a CIQ Form and file the original of the CIQ Form with the County Clerk of Galveston County.

If Proposer has given an officer of Galveston County or a family member of an officer of Galveston County one or more gifts with an aggregate value of more than \$250.00 during the preceding 12-months, then Proposer **MUST** complete a CIQ Form and file the original of the CIQ Form with the County Clerk of Galveston County

The Galveston County Clerk has offices at the following locations:

Galveston County Clerk
Galveston County Justice Center, Suite 2001
600 59th Street
Galveston, Texas 77551

Galveston County Clerk
North County Annex, 1st Floor
174 Calder Road
League City, Texas 77573

Again, if Proposer is required to file a CIQ Form, the original completed form is filed with the Galveston County Clerk (not the Purchasing Agent).

For Proposer's convenience, a blank CIQ Form is enclosed with this proposal. Blank CIQ Forms may also be obtained by visiting the Galveston County Clerk's website and/or the Purchasing Agent's website - both of these web sites are linked to the Galveston County homepage at <http://www.galvestoncountytx.gov>

As well, blank CIQ Forms may be obtained by visiting the Texas Ethics Commission website, specifically at <http://www.ethics.state.tx.us/whatsnew/conflictfroms.htm>

Chapter 176 specifies deadlines for the filing of CIQ Forms (both initial filings and updated filings).

It is Proposer's sole responsibility to file a true and complete CIQ Form with the Galveston County Clerk if Proposer is required to file by the requirements of Chapter 176. Proposer is advised that it is an offense to fail to comply with the disclosure reporting requirements dictated under Chapter 176 of the Texas Local Government Code.

If you have questions about compliance with Chapter 176, please consult your own legal counsel. Compliance is the individual responsibility of each person, business, and agent who is subject to Chapter 176 of the Texas Local Government Code.



COUNTY of GALVESTON
Purchasing Department

rev. 1.3, March 29, 2010

| | |
|-------------------|--|
| FORM PEID: | Request for Person-Entity Identification Data |
|-------------------|--|

Instructions: Please type or print clearly when completing sections 1 thru 4 and return completed form to:

Galveston County Purchasing Agent
722 Moody Avenue (21 st. Street), 5th Floor
Galveston, Texas 77550
(409) 770-5371
prodoc@co.galveston.tx.us

| | | | | |
|----|---------------------------------|---------------|---------------|--|
| 1. | Business Name: | | | |
| | Attention Line: | | | |
| 2. | Physical Address: | | | |
| | City: | State: | Zip+4: | |
| 3. | Billing / Remit Address: | | | |
| | City: | State: | Zip+4 | |
| 4. | Main Contact Person: | | | |
| | Main Phone Number: | | | |
| | Fax Number: | | | |
| | E-mail Address: | | | |

Areas below are for County use only.

| | |
|----------------------|-----------------------|
| Requested By: | Phone / Ext. # |
| Department: | Date: |

| | | |
|--------------------------------------|--|--------------------------------------|
| Action Requested - Check One: | IFAS PEID Vendor Number: | |
| <input type="checkbox"/> Add New | <input type="checkbox"/> Change Data | <input type="checkbox"/> Re-activate |
| <input type="checkbox"/> Inactivate | <input type="checkbox"/> Employee | <input type="checkbox"/> Attorney |
| <input type="checkbox"/> Landlord | <input type="checkbox"/> Foster Parent | <input type="checkbox"/> Refund |
| <input type="checkbox"/> OneTime | <input type="checkbox"/> Foster Child | |

Request for Taxpayer Identification Number and Certification

**Give Form to the
requester. Do not
send to the IRS.**

▶ Go to www.irs.gov/FormW9 for instructions and the latest information.

| | | |
|--|---|---|
| Print or type. See Specific Instructions on page 3. | <p>1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.</p> <hr/> <p>2 Business name/disregarded entity name, if different from above</p> <hr/> <p>3 Check appropriate box for federal tax classification of the person whose name is entered on line 1. Check only one of the following seven boxes.</p> <p><input type="checkbox"/> Individual/sole proprietor or single-member LLC <input type="checkbox"/> C Corporation <input type="checkbox"/> S Corporation <input type="checkbox"/> Partnership <input type="checkbox"/> Trust/estate</p> <p><input type="checkbox"/> Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=Partnership) ▶ _____</p> <p>Note: Check the appropriate box in the line above for the tax classification of the single-member owner. Do not check LLC if the LLC is classified as a single-member LLC that is disregarded from the owner unless the owner of the LLC is another LLC that is not disregarded from the owner for U.S. federal tax purposes. Otherwise, a single-member LLC that is disregarded from the owner should check the appropriate box for the tax classification of its owner.</p> <p><input type="checkbox"/> Other (see instructions) ▶ _____</p> | <p>4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3):</p> <p>Exempt payee code (if any) _____</p> <p>Exemption from FATCA reporting code (if any) _____</p> <p><small>(Applies to accounts maintained outside the U.S.)</small></p> |
| | <p>5 Address (number, street, and apt. or suite no.) See instructions.</p> <hr/> <p>6 City, state, and ZIP code</p> <hr/> <p>7 List account number(s) here (optional)</p> | <p>Requester's name and address (optional)</p> |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|-------------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|-----------|--|--|--|--|--|--|--|--|--|---------------------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| <p>Part I Taxpayer Identification Number (TIN)</p> <p>Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see <i>How to get a TIN</i>, later.</p> <p>Note: If the account is in more than one name, see the instructions for line 1. Also see <i>What Name and Number To Give the Requester</i> for guidelines on whose number to enter.</p> | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="10" style="text-align: center;">Social security number</td> </tr> <tr> <td style="width: 30px; height: 25px;"></td> <td style="width: 30px; height: 25px;"></td> <td style="width: 30px; height: 25px;"></td> <td style="width: 30px; height: 25px;"></td> <td style="width: 30px; height: 25px;"></td> <td style="width: 30px; height: 25px;"></td> <td style="width: 30px; height: 25px;"></td> <td style="width: 30px; height: 25px;"></td> <td style="width: 30px; height: 25px;"></td> <td style="width: 30px; height: 25px;"></td> <td style="width: 30px; height: 25px;"></td> </tr> <tr> <td colspan="10" style="text-align: center;">or</td> </tr> <tr> <td colspan="10" style="text-align: center;">Employer identification number</td> </tr> <tr> <td style="width: 30px; height: 25px;"></td> <td style="width: 30px; height: 25px;"></td> <td style="width: 30px; height: 25px;"></td> <td style="width: 30px; height: 25px;"></td> <td style="width: 30px; height: 25px;"></td> <td style="width: 30px; height: 25px;"></td> <td style="width: 30px; height: 25px;"></td> <td style="width: 30px; height: 25px;"></td> <td style="width: 30px; height: 25px;"></td> <td style="width: 30px; height: 25px;"></td> <td style="width: 30px; height: 25px;"></td> </tr> </table> | Social security number | | | | | | | | | | | | | | | | | | | | | or | | | | | | | | | | Employer identification number | | | | | | | | | | | | | | | | | | | | |
| Social security number | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| or | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Employer identification number | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| <p>Part II Certification</p> <p>Under penalties of perjury, I certify that:</p> <ol style="list-style-type: none"> The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and I am a U.S. citizen or other U.S. person (defined below); and The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct. <p>Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions for Part II, later.</p> |
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| | | |
|------------------|----------------------------|--------|
| Sign Here | Signature of U.S. person ▶ | Date ▶ |
|------------------|----------------------------|--------|

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to www.irs.gov/FormW9.

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following.

- Form 1099-DIV (dividends, including those from stocks or mutual funds)
- Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
- Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
- Form 1099-S (proceeds from real estate transactions)
- Form 1099-K (merchant card and third party network transactions)
- Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
- Form 1099-C (canceled debt)
- Form 1099-A (acquisition or abandonment of secured property)

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding, later.

By signing the filled-out form, you:

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
2. Certify that you are not subject to backup withholding, or
3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income, and
4. Certify that FATCA code(s) entered on this form (if any) indicating that you are exempt from the FATCA reporting, is correct. See *What is FATCA reporting*, later, for further information.

Note: If you are a U.S. person and a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

Definition of a U.S. person. For federal tax purposes, you are considered a U.S. person if you are:

- An individual who is a U.S. citizen or U.S. resident alien;
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States;
- An estate (other than a foreign estate); or
- A domestic trust (as defined in Regulations section 301.7701-7).

Special rules for partnerships. Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax under section 1446 on any foreign partners' share of effectively connected taxable income from such business. Further, in certain cases where a Form W-9 has not been received, the rules under section 1446 require a partnership to presume that a partner is a foreign person, and pay the section 1446 withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid section 1446 withholding on your share of partnership income.

In the cases below, the following person must give Form W-9 to the partnership for purposes of establishing its U.S. status and avoiding withholding on its allocable share of net income from the partnership conducting a trade or business in the United States.

- In the case of a disregarded entity with a U.S. owner, the U.S. owner of the disregarded entity and not the entity;
- In the case of a grantor trust with a U.S. grantor or other U.S. owner, generally, the U.S. grantor or other U.S. owner of the grantor trust and not the trust; and
- In the case of a U.S. trust (other than a grantor trust), the U.S. trust (other than a grantor trust) and not the beneficiaries of the trust.

Foreign person. If you are a foreign person or the U.S. branch of a foreign bank that has elected to be treated as a U.S. person, do not use Form W-9. Instead, use the appropriate Form W-8 or Form 8233 (see Pub. 515, *Withholding of Tax on Nonresident Aliens and Foreign Entities*).

Nonresident alien who becomes a resident alien. Generally, only a nonresident alien individual may use the terms of a tax treaty to reduce or eliminate U.S. tax on certain types of income. However, most tax treaties contain a provision known as a "saving clause." Exceptions specified in the saving clause may permit an exemption from tax to continue for certain types of income even after the payee has otherwise become a U.S. resident alien for tax purposes.

If you are a U.S. resident alien who is relying on an exception contained in the saving clause of a tax treaty to claim an exemption from U.S. tax on certain types of income, you must attach a statement to Form W-9 that specifies the following five items.

1. The treaty country. Generally, this must be the same treaty under which you claimed exemption from tax as a nonresident alien.
2. The treaty article addressing the income.
3. The article number (or location) in the tax treaty that contains the saving clause and its exceptions.
4. The type and amount of income that qualifies for the exemption from tax.
5. Sufficient facts to justify the exemption from tax under the terms of the treaty article.

Example. Article 20 of the U.S.-China income tax treaty allows an exemption from tax for scholarship income received by a Chinese student temporarily present in the United States. Under U.S. law, this student will become a resident alien for tax purposes if his or her stay in the United States exceeds 5 calendar years. However, paragraph 2 of the first Protocol to the U.S.-China treaty (dated April 30, 1984) allows the provisions of Article 20 to continue to apply even after the Chinese student becomes a resident alien of the United States. A Chinese student who qualifies for this exception (under paragraph 2 of the first protocol) and is relying on this exception to claim an exemption from tax on his or her scholarship or fellowship income would attach to Form W-9 a statement that includes the information described above to support that exemption.

If you are a nonresident alien or a foreign entity, give the requester the appropriate completed Form W-8 or Form 8233.

Backup Withholding

What is backup withholding? Persons making certain payments to you must under certain conditions withhold and pay to the IRS 24% of such payments. This is called "backup withholding." Payments that may be subject to backup withholding include interest, tax-exempt interest, dividends, broker and barter exchange transactions, rents, royalties, nonemployee pay, payments made in settlement of payment card and third party network transactions, and certain payments from fishing boat operators. Real estate transactions are not subject to backup withholding.

You will not be subject to backup withholding on payments you receive if you give the requester your correct TIN, make the proper certifications, and report all your taxable interest and dividends on your tax return.

Payments you receive will be subject to backup withholding if:

1. You do not furnish your TIN to the requester,
2. You do not certify your TIN when required (see the instructions for Part II for details),
3. The IRS tells the requester that you furnished an incorrect TIN,
4. The IRS tells you that you are subject to backup withholding because you did not report all your interest and dividends on your tax return (for reportable interest and dividends only), or
5. You do not certify to the requester that you are not subject to backup withholding under 4 above (for reportable interest and dividend accounts opened after 1983 only).

Certain payees and payments are exempt from backup withholding. See *Exempt payee code*, later, and the separate Instructions for the Requester of Form W-9 for more information.

Also see *Special rules for partnerships*, earlier.

What is FATCA Reporting?

The Foreign Account Tax Compliance Act (FATCA) requires a participating foreign financial institution to report all United States account holders that are specified United States persons. Certain payees are exempt from FATCA reporting. See *Exemption from FATCA reporting code*, later, and the Instructions for the Requester of Form W-9 for more information.

Updating Your Information

You must provide updated information to any person to whom you claimed to be an exempt payee if you are no longer an exempt payee and anticipate receiving reportable payments in the future from this person. For example, you may need to provide updated information if you are a C corporation that elects to be an S corporation, or if you no longer are tax exempt. In addition, you must furnish a new Form W-9 if the name or TIN changes for the account; for example, if the grantor of a grantor trust dies.

Penalties

Failure to furnish TIN. If you fail to furnish your correct TIN to a requester, you are subject to a penalty of \$50 for each such failure unless your failure is due to reasonable cause and not to willful neglect.

Civil penalty for false information with respect to withholding. If you make a false statement with no reasonable basis that results in no backup withholding, you are subject to a \$500 penalty.

Criminal penalty for falsifying information. Willfully falsifying certifications or affirmations may subject you to criminal penalties including fines and/or imprisonment.

Misuse of TINs. If the requester discloses or uses TINs in violation of federal law, the requester may be subject to civil and criminal penalties.

Specific Instructions

Line 1

You must enter one of the following on this line; **do not** leave this line blank. The name should match the name on your tax return.

If this Form W-9 is for a joint account (other than an account maintained by a foreign financial institution (FFI)), list first, and then circle, the name of the person or entity whose number you entered in Part I of Form W-9. If you are providing Form W-9 to an FFI to document a joint account, each holder of the account that is a U.S. person must provide a Form W-9.

a. **Individual.** Generally, enter the name shown on your tax return. If you have changed your last name without informing the Social Security Administration (SSA) of the name change, enter your first name, the last name as shown on your social security card, and your new last name.

Note: ITIN applicant: Enter your individual name as it was entered on your Form W-7 application, line 1a. This should also be the same as the name you entered on the Form 1040/1040A/1040EZ you filed with your application.

b. **Sole proprietor or single-member LLC.** Enter your individual name as shown on your 1040/1040A/1040EZ on line 1. You may enter your business, trade, or “doing business as” (DBA) name on line 2.

c. **Partnership, LLC that is not a single-member LLC, C corporation, or S corporation.** Enter the entity’s name as shown on the entity’s tax return on line 1 and any business, trade, or DBA name on line 2.

d. **Other entities.** Enter your name as shown on required U.S. federal tax documents on line 1. This name should match the name shown on the charter or other legal document creating the entity. You may enter any business, trade, or DBA name on line 2.

e. **Disregarded entity.** For U.S. federal tax purposes, an entity that is disregarded as an entity separate from its owner is treated as a “disregarded entity.” See Regulations section 301.7701-2(c)(2)(iii). Enter the owner’s name on line 1. The name of the entity entered on line 1 should never be a disregarded entity. The name on line 1 should be the name shown on the income tax return on which the income should be reported. For example, if a foreign LLC that is treated as a disregarded entity for U.S. federal tax purposes has a single owner that is a U.S. person, the U.S. owner’s name is required to be provided on line 1. If the direct owner of the entity is also a disregarded entity, enter the first owner that is not disregarded for federal tax purposes. Enter the disregarded entity’s name on line 2, “Business name/disregarded entity name.” If the owner of the disregarded entity is a foreign person, the owner must complete an appropriate Form W-8 instead of a Form W-9. This is the case even if the foreign person has a U.S. TIN.

Line 2

If you have a business name, trade name, DBA name, or disregarded entity name, you may enter it on line 2.

Line 3

Check the appropriate box on line 3 for the U.S. federal tax classification of the person whose name is entered on line 1. Check only one box on line 3.

| IF the entity/person on line 1 is a(n) . . . | THEN check the box for . . . |
|--|---|
| • Corporation | Corporation |
| • Individual • Sole proprietorship, or • Single-member limited liability company (LLC) owned by an individual and disregarded for U.S. federal tax purposes. | Individual/sole proprietor or single-member LLC |
| • LLC treated as a partnership for U.S. federal tax purposes, • LLC that has filed Form 8832 or 2553 to be taxed as a corporation, or • LLC that is disregarded as an entity separate from its owner but the owner is another LLC that is not disregarded for U.S. federal tax purposes. | Limited liability company and enter the appropriate tax classification. (P= Partnership; C= C corporation; or S= S corporation) |
| • Partnership | Partnership |
| • Trust/estate | Trust/estate |

Line 4, Exemptions

If you are exempt from backup withholding and/or FATCA reporting, enter in the appropriate space on line 4 any code(s) that may apply to you.

Exempt payee code.

- Generally, individuals (including sole proprietors) are not exempt from backup withholding.
- Except as provided below, corporations are exempt from backup withholding for certain payments, including interest and dividends.
- Corporations are not exempt from backup withholding for payments made in settlement of payment card or third party network transactions.
- Corporations are not exempt from backup withholding with respect to attorneys’ fees or gross proceeds paid to attorneys, and corporations that provide medical or health care services are not exempt with respect to payments reportable on Form 1099-MISC.

The following codes identify payees that are exempt from backup withholding. Enter the appropriate code in the space in line 4.

- 1—An organization exempt from tax under section 501(a), any IRA, or a custodial account under section 403(b)(7) if the account satisfies the requirements of section 401(f)(2)
- 2—The United States or any of its agencies or instrumentalities
- 3—A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities
- 4—A foreign government or any of its political subdivisions, agencies, or instrumentalities
- 5—A corporation
- 6—A dealer in securities or commodities required to register in the United States, the District of Columbia, or a U.S. commonwealth or possession
- 7—A futures commission merchant registered with the Commodity Futures Trading Commission
- 8—A real estate investment trust
- 9—An entity registered at all times during the tax year under the Investment Company Act of 1940
- 10—A common trust fund operated by a bank under section 584(a)
- 11—A financial institution
- 12—A middleman known in the investment community as a nominee or custodian
- 13—A trust exempt from tax under section 664 or described in section 4947

The following chart shows types of payments that may be exempt from backup withholding. The chart applies to the exempt payees listed above, 1 through 13.

| IF the payment is for . . . | THEN the payment is exempt for . . . |
|--|---|
| Interest and dividend payments | All exempt payees except for 7 |
| Broker transactions | Exempt payees 1 through 4 and 6 through 11 and all C corporations. S corporations must not enter an exempt payee code because they are exempt only for sales of noncovered securities acquired prior to 2012. |
| Barter exchange transactions and patronage dividends | Exempt payees 1 through 4 |
| Payments over \$600 required to be reported and direct sales over \$5,000 ¹ | Generally, exempt payees 1 through 5 ² |
| Payments made in settlement of payment card or third party network transactions | Exempt payees 1 through 4 |

¹ See Form 1099-MISC, Miscellaneous Income, and its instructions.

² However, the following payments made to a corporation and reportable on Form 1099-MISC are not exempt from backup withholding: medical and health care payments, attorneys' fees, gross proceeds paid to an attorney reportable under section 6045(f), and payments for services paid by a federal executive agency.

Exemption from FATCA reporting code. The following codes identify payees that are exempt from reporting under FATCA. These codes apply to persons submitting this form for accounts maintained outside of the United States by certain foreign financial institutions. Therefore, if you are only submitting this form for an account you hold in the United States, you may leave this field blank. Consult with the person requesting this form if you are uncertain if the financial institution is subject to these requirements. A requester may indicate that a code is not required by providing you with a Form W-9 with "Not Applicable" (or any similar indication) written or printed on the line for a FATCA exemption code.

A—An organization exempt from tax under section 501(a) or any individual retirement plan as defined in section 7701(a)(37)

B—The United States or any of its agencies or instrumentalities

C—A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities

D—A corporation the stock of which is regularly traded on one or more established securities markets, as described in Regulations section 1.1472-1(c)(1)(i)

E—A corporation that is a member of the same expanded affiliated group as a corporation described in Regulations section 1.1472-1(c)(1)(i)

F—A dealer in securities, commodities, or derivative financial instruments (including notional principal contracts, futures, forwards, and options) that is registered as such under the laws of the United States or any state

G—A real estate investment trust

H—A regulated investment company as defined in section 851 or an entity registered at all times during the tax year under the Investment Company Act of 1940

I—A common trust fund as defined in section 584(a)

J—A bank as defined in section 581

K—A broker

L—A trust exempt from tax under section 664 or described in section 4947(a)(1)

M—A tax exempt trust under a section 403(b) plan or section 457(g) plan

Note: You may wish to consult with the financial institution requesting this form to determine whether the FATCA code and/or exempt payee code should be completed.

Line 5

Enter your address (number, street, and apartment or suite number). This is where the requester of this Form W-9 will mail your information returns. If this address differs from the one the requester already has on file, write NEW at the top. If a new address is provided, there is still a chance the old address will be used until the payor changes your address in their records.

Line 6

Enter your city, state, and ZIP code.

Part I. Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. If you are a resident alien and you do not have and are not eligible to get an SSN, your TIN is your IRS individual taxpayer identification number (ITIN). Enter it in the social security number box. If you do not have an ITIN, see *How to get a TIN* below.

If you are a sole proprietor and you have an EIN, you may enter either your SSN or EIN.

If you are a single-member LLC that is disregarded as an entity separate from its owner, enter the owner's SSN (or EIN, if the owner has one). Do not enter the disregarded entity's EIN. If the LLC is classified as a corporation or partnership, enter the entity's EIN.

Note: See *What Name and Number To Give the Requester*, later, for further clarification of name and TIN combinations.

How to get a TIN. If you do not have a TIN, apply for one immediately. To apply for an SSN, get Form SS-5, Application for a Social Security Card, from your local SSA office or get this form online at www.SSA.gov. You may also get this form by calling 1-800-772-1213. Use Form W-7, Application for IRS Individual Taxpayer Identification Number, to apply for an ITIN, or Form SS-4, Application for Employer Identification Number, to apply for an EIN. You can apply for an EIN online by accessing the IRS website at www.irs.gov/Businesses and clicking on Employer Identification Number (EIN) under Starting a Business. Go to www.irs.gov/Forms to view, download, or print Form W-7 and/or Form SS-4. Or, you can go to www.irs.gov/OrderForms to place an order and have Form W-7 and/or SS-4 mailed to you within 10 business days.

If you are asked to complete Form W-9 but do not have a TIN, apply for a TIN and write "Applied For" in the space for the TIN, sign and date the form, and give it to the requester. For interest and dividend payments, and certain payments made with respect to readily tradable instruments, generally you will have 60 days to get a TIN and give it to the requester before you are subject to backup withholding on payments. The 60-day rule does not apply to other types of payments. You will be subject to backup withholding on all such payments until you provide your TIN to the requester.

Note: Entering "Applied For" means that you have already applied for a TIN or that you intend to apply for one soon.

Caution: A disregarded U.S. entity that has a foreign owner must use the appropriate Form W-8.

Part II. Certification

To establish to the withholding agent that you are a U.S. person, or resident alien, sign Form W-9. You may be requested to sign by the withholding agent even if item 1, 4, or 5 below indicates otherwise.

For a joint account, only the person whose TIN is shown in Part I should sign (when required). In the case of a disregarded entity, the person identified on line 1 must sign. Exempt payees, see *Exempt payee code*, earlier.

Signature requirements. Complete the certification as indicated in items 1 through 5 below.

1. Interest, dividend, and barter exchange accounts opened before 1984 and broker accounts considered active during 1983. You must give your correct TIN, but you do not have to sign the certification.

2. Interest, dividend, broker, and barter exchange accounts opened after 1983 and broker accounts considered inactive during 1983. You must sign the certification or backup withholding will apply. If you are subject to backup withholding and you are merely providing your correct TIN to the requester, you must cross out item 2 in the certification before signing the form.

3. Real estate transactions. You must sign the certification. You may cross out item 2 of the certification.

4. Other payments. You must give your correct TIN, but you do not have to sign the certification unless you have been notified that you have previously given an incorrect TIN. "Other payments" include payments made in the course of the requester's trade or business for rents, royalties, goods (other than bills for merchandise), medical and health care services (including payments to corporations), payments to a nonemployee for services, payments made in settlement of payment card and third party network transactions, payments to certain fishing boat crew members and fishermen, and gross proceeds paid to attorneys (including payments to corporations).

5. Mortgage interest paid by you, acquisition or abandonment of secured property, cancellation of debt, qualified tuition program payments (under section 529), ABLE accounts (under section 529A), IRA, Coverdell ESA, Archer MSA or HSA contributions or distributions, and pension distributions. You must give your correct TIN, but you do not have to sign the certification.

What Name and Number To Give the Requester

| For this type of account: | Give name and SSN of: |
|--|---|
| 1. Individual | The individual |
| 2. Two or more individuals (joint account) other than an account maintained by an FFI | The actual owner of the account or, if combined funds, the first individual on the account ¹ |
| 3. Two or more U.S. persons (joint account maintained by an FFI) | Each holder of the account |
| 4. Custodial account of a minor (Uniform Gift to Minors Act) | The minor ² |
| 5. a. The usual revocable savings trust (grantor is also trustee) b. So-called trust account that is not a legal or valid trust under state law | The grantor-trustee ¹ The actual owner ¹ |
| 6. Sole proprietorship or disregarded entity owned by an individual | The owner ³ |
| 7. Grantor trust filing under Optional Form 1099 Filing Method 1 (see Regulations section 1.671-4(b)(2)(i)(A)) | The grantor* |
| For this type of account: | Give name and EIN of: |
| 8. Disregarded entity not owned by an individual | The owner |
| 9. A valid trust, estate, or pension trust | Legal entity ⁴ |
| 10. Corporation or LLC electing corporate status on Form 8832 or Form 2553 | The corporation |
| 11. Association, club, religious, charitable, educational, or other tax-exempt organization | The organization |
| 12. Partnership or multi-member LLC | The partnership |
| 13. A broker or registered nominee | The broker or nominee |

| For this type of account: | Give name and EIN of: |
|---|-----------------------|
| 14. Account with the Department of Agriculture in the name of a public entity (such as a state or local government, school district, or prison) that receives agricultural program payments | The public entity |
| 15. Grantor trust filing under the Form 1041 Filing Method or the Optional Form 1099 Filing Method 2 (see Regulations section 1.671-4(b)(2)(i)(B)) | The trust |

¹ List first and circle the name of the person whose number you furnish. If only one person on a joint account has an SSN, that person's number must be furnished.

² Circle the minor's name and furnish the minor's SSN.

³ You must show your individual name and you may also enter your business or DBA name on the "Business name/disregarded entity" name line. You may use either your SSN or EIN (if you have one), but the IRS encourages you to use your SSN.

⁴ List first and circle the name of the trust, estate, or pension trust. (Do not furnish the TIN of the personal representative or trustee unless the legal entity itself is not designated in the account title.) Also see *Special rules for partnerships*, earlier.

*Note: The grantor also must provide a Form W-9 to trustee of trust.

Note: If no name is circled when more than one name is listed, the number will be considered to be that of the first name listed.

Secure Your Tax Records From Identity Theft

Identity theft occurs when someone uses your personal information such as your name, SSN, or other identifying information, without your permission, to commit fraud or other crimes. An identity thief may use your SSN to get a job or may file a tax return using your SSN to receive a refund.

To reduce your risk:

- Protect your SSN,
- Ensure your employer is protecting your SSN, and
- Be careful when choosing a tax preparer.

If your tax records are affected by identity theft and you receive a notice from the IRS, respond right away to the name and phone number printed on the IRS notice or letter.

If your tax records are not currently affected by identity theft but you think you are at risk due to a lost or stolen purse or wallet, questionable credit card activity or credit report, contact the IRS Identity Theft Hotline at 1-800-908-4490 or submit Form 14039.

For more information, see Pub. 5027, Identity Theft Information for Taxpayers.

Victims of identity theft who are experiencing economic harm or a systemic problem, or are seeking help in resolving tax problems that have not been resolved through normal channels, may be eligible for Taxpayer Advocate Service (TAS) assistance. You can reach TAS by calling the TAS toll-free case intake line at 1-877-777-4778 or TTY/TDD 1-800-829-4059.

Protect yourself from suspicious emails or phishing schemes.

Phishing is the creation and use of email and websites designed to mimic legitimate business emails and websites. The most common act is sending an email to a user falsely claiming to be an established legitimate enterprise in an attempt to scam the user into surrendering private information that will be used for identity theft.

The IRS does not initiate contacts with taxpayers via emails. Also, the IRS does not request personal detailed information through email or ask taxpayers for the PIN numbers, passwords, or similar secret access information for their credit card, bank, or other financial accounts.

If you receive an unsolicited email claiming to be from the IRS, forward this message to phishing@irs.gov. You may also report misuse of the IRS name, logo, or other IRS property to the Treasury Inspector General for Tax Administration (TIGTA) at 1-800-366-4484. You can forward suspicious emails to the Federal Trade Commission at spam@uce.gov or report them at www.ftc.gov/complaint. You can contact the FTC at www.ftc.gov/idtheft or 877-IDTHEFT (877-438-4338). If you have been the victim of identity theft, see www.IdentityTheft.gov and Pub. 5027.

Visit www.irs.gov/IdentityTheft to learn more about identity theft and how to reduce your risk.

Privacy Act Notice

Section 6109 of the Internal Revenue Code requires you to provide your correct TIN to persons (including federal agencies) who are required to file information returns with the IRS to report interest, dividends, or certain other income paid to you; mortgage interest you paid; the acquisition or abandonment of secured property; the cancellation of debt; or contributions you made to an IRA, Archer MSA, or HSA. The person collecting this form uses the information on the form to file information returns with the IRS, reporting the above information. Routine uses of this information include giving it to the Department of Justice for civil and criminal litigation and to cities, states, the District of Columbia, and U.S. commonwealths and possessions for use in administering their laws. The information also may be disclosed to other countries under a treaty, to federal and state agencies to enforce civil and criminal laws, or to federal law enforcement and intelligence agencies to combat terrorism. You must provide your TIN whether or not you are required to file a tax return. Under section 3406, payers must generally withhold a percentage of taxable interest, dividend, and certain other payments to a payee who does not give a TIN to the payer. Certain penalties may also apply for providing false or fraudulent information.

CONFLICT OF INTEREST QUESTIONNAIRE

FORM CIQ

For vendor or other person doing business with local governmental entity

This questionnaire reflects changes made to the law by H.B. 1491, 80th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code by a person who has a business relationship as defined by Section 176.001 (1-a) with a local governmental entity and the person meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the person becomes aware of facts that require the statement to be filed. See Section 176.006, Local Government Code.

A person commits an offense if the person knowingly violates Section 176.006, Local Government Code. An offense under this section is a Class C misdemeanor.

OFFICE USE ONLY

Date Received

1 Name of person who has a business relationship with local governmental entity.

2 Check this box if you are filing an update to a previously filed questionnaire.

(The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date the originally filed questionnaire becomes incomplete or inaccurate.)

3 Name of local government officer with whom filer has employment or business relationship.

Name of Officer

This section (item 3 including subparts A, B, C & D) must be completed for each *officer* with whom the filer has an employment or other business relationship as defined by Section 176.001 (1-a), Local Government Code. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer named in this section receiving or likely to receive taxable income, other than investment income, from the filer of the questionnaire?

Yes

NO

B. Is the filer of the questionnaire receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government *officer* named in this section AND the taxable income is not received from the local governmental entity?

Yes

NO

C. Is the filer of this questionnaire employed by a corporation or other business entity with respect to which the local government officer serves as an *officer* or director, or holds an ownership of 10 percent or more?

Yes

NO

D. Describe each employment or business relationship with the local government *officer* named in this section.

4

Signature of person doing business with the governmental entity

Date