



INVITATION TO BID 14ITB041414K-NH

**BUILDING AUTOMATION SYSTEM FOR THE
FULTON COUNTY GOVERNMENT CENTER and
JUSTICE CENTER COMPLEX BUILDINGS**

For

FACILITIES AND TRANSPORTATION SERVICES DEPARTMENT

BID DUE DATE AND TIME: May 23, 2014 at 11:00 AM

BID ISSUANCE DATE: April 23, 2014

PRE-BID CONFERENCE DATE: May 9, 2014 at 2:00 PM

QUESTION DEADLINE: May 12, 2014 at 10:00 AM

PURCHASING CONTACT: Nancy Harrison, Assistant Purchasing Agent

E-MAIL: nancy.harrison@fultoncountyga.gov

**LOCATION: FULTON COUNTY DEPARTMENT OF PURCHASING &
CONTRACT COMPLIANCE
130 PEACHTREE STREET, S.W., SUITE 1168
ATLANTA, GA 30303**

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INVITATION TO BID
14ITB041414K-NH – BUILDING AUTOMATION SYSTEM FOR
GOVERNMENT AND JUSTICE CENTER COMPLEX BUILDINGS

Sealed Bids for furnishing all materials, labor, tools, equipment and appurtenances necessary for installation of an automation system for chiller and Air Handling Unit (AHU) integration for the Fulton County Government Center and Justice Center Complex buildings will be received by the Fulton County Department of Purchasing and Contract Compliance at 130 Peachtree Street, S.W., Suite 1168, Atlanta, GA 30303, **no later than 11:00 a.m.**, local time, on **May 23, 2014**.

SCOPE OF WORK

The scope of work is for the installation of an automation system for chiller and AHU integration for the Fulton County Government Center and Justice Center Complex buildings. The work will be carried out in three (3) phases as follows:

- Phase 1 – Installing necessary control systems and control logic for the chillers in the Government Center and integrating the controls to the BAS.
- Phase 2 – Integrating the variable speed drives in the Government Center buildings to the existing BAS.
- Phase 3 – Integrating the variable speed drives in the Justice Center Complex to the existing BAS.

The building uses Johnson Control 'Metasys' for its Building Automation requirements. The detailed scope of work and technical specifications are outlined in the Division of Work Section 4, Scope of Work and Technical Specifications of this bid document.

BID DOCUMENTS

This document and supporting documents can be downloaded at the Fulton County Website, <http://www.fultoncountyga.gov> under "Bid Opportunities".

PURCHASING CONTACT

Information regarding the bid or bid requirements, either procedural or technical, may be obtained by submitting questions in writing to:

Fulton County Government
Department of Purchasing & Contract Compliance
Attn: Nancy Harrison
Fulton County Public Safety Building
130 Peachtree Street, S.W. Suite 1168
Atlanta, GA 30303
Email: nancy.harrison@fultoncountyga.gov
Fax: 404-893-1744
Reference Bid #: 14ITB041414K-NH

PRE-BID CONFERENCE

Date: May 9, 2014
Time: 2:00 PM
Location: Fulton County Department of Purchasing & Contract Compliance
130 Peachtree Street, SW; 1st Floor, Atlanta, GA 30303

A Pre-Bid Conference will be held in the Purchasing Bid Room, located 130 Peachtree Street, SW, Suite 1168, Atlanta, Georgia 30318, followed by a **mandatory site visit**. ***Inquiries regarding the solicitation either technical or otherwise may be submitted in writing prior to the pre-bid conference and will be addressed at the pre-bid conference.***

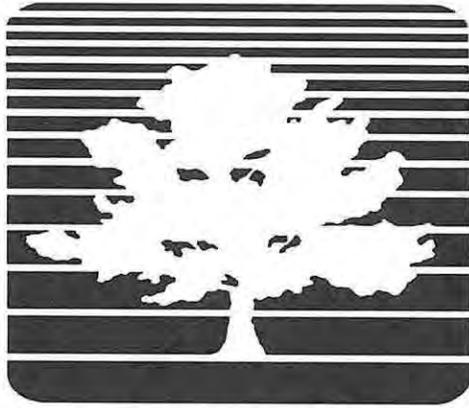
Any additional questions asked at the Pre-Bid Conference must be submitted in written form at the Pre-Bid conference and will be responded to in the form of an addendum with the County's official responses.

The Pre-Bid Conference will be conducted for the purpose of explaining the County's bid process, the specifications/technical documents, and to provide non-binding verbal responses to questions concerning these bid specifications and to discuss issues from the Bidders perspective. However, no verbal response provided at the Pre-Bid Conference binds the County. Only those responses to written questions that are responded to by the County in written communications will be official.

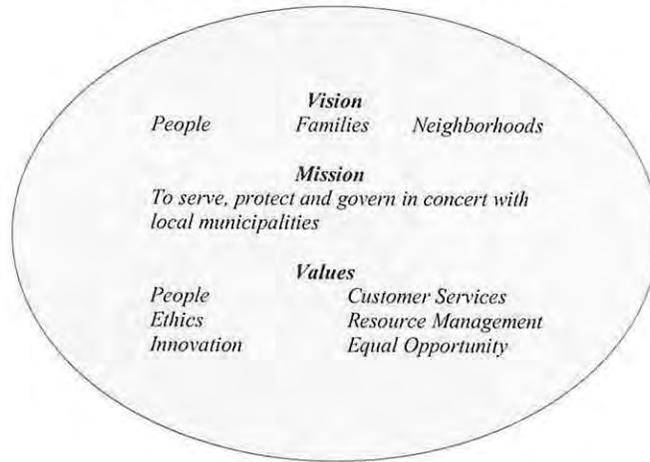
BONDING REQUIREMENTS

Each Bid must be accompanied by a Bid Bond, prepared on the Bid Bond provided in this Bid Document or a Surety Company's Standard Bid Bond, duly executed by the Bidder as principal and having as surety, a surety company licensed to do business in the State of Georgia by the Georgia Insurance Commissioner and listed in the latest issue of U.S. Treasury Circular 570, in the amount of five percent of the Bid.

The successful Bidder for this Contract will be required to furnish a satisfactory Performance and Payment Bond each in the amount of 100 percent of the Bid, and proof of insurance in accordance with the requirements set forth in Section 5 of this Bid Document.



FULTON COUNTY



CONTRACT DOCUMENTS FOR

14ITB041414K-NH

BUILDING AUTOMATION SYSTEM FOR THE FULTON COUNTY GOVERNMENT CENTER and JUSTICE CENTER COMPLEX BUILDINGS

For

FACILITIES AND TRANSPORTATION SERVICES DEPARTMENT

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CONTRACT AGREEMENT

Contractor: *[Insert Contractor Name]*

Contract No.: 14ITB041414K-NH – BUILDING AUTOMATION SYSTEM FOR THE FULTON COUNTY GOVERNMENT CENTER and JUSTICE CENTER COMPLEX BUILDINGS

Address: *[Insert Contractor Address]*
City, State

Telephone: *[Insert Contractor telephone #]*

E-mail: *[Insert Consultant Email]*

Contact: *[Insert Contractor Contact Name]*
[Insert Contractor Contact Title]

This Agreement made and entered into effective the _____ day of _____, 2014 by and between **FULTON COUNTY, GEORGIA**, a political subdivision of the State of Georgia, hereinafter referred to as "**County**", and **[Insert Contractor Company Name]**, hereinafter referred to as "**Contractor**", authorized to transact business in the State of Georgia.

WITNESSETH

WHEREAS, County through its **Facilities and Transportation Services Department** hereinafter referred to as the "**Department**", desires to retain a qualified and experienced Contractor to perform all materials, labor, tools, equipment and appurtenances necessary for installation of an automation system for chiller and Air Handling Unit (AHU) integration for the Fulton County Government Center and Justice Center Complex buildings hereinafter, referred to as the "**Project**".

WHEREAS, Contractor has represented to County that it is experienced and has qualified and local staff available to commit to the Project and County has relied upon such representations.

NOW THEREFORE, for and in consideration of the mutual covenants contained herein, and for other good and valuable consideration, County and Contractor agree as follows:

ARTICLE 1. CONTRACT DOCUMENTS

County hereby engages Contractor, and Contractor hereby agrees, to perform the services hereinafter set forth in accordance with this Agreement, consisting of the following contract documents:

- I. Form of Agreement;
- II. Addenda;
- III. Exhibit A: General Conditions;
- IV. Exhibit B: Special Conditions [where applicable]
- V. Exhibit C: Scope of Work
- VI. Exhibit D: Compensation;
- VII. Exhibit E: Purchasing Forms;
- VIII. Exhibit F: Contract Compliance Forms;
- IX. Exhibit G: Insurance and Risk Management Form;
- X. Exhibit H: Payment & Performance Bonds (if applicable)

The foregoing documents constitute the entire Agreement of the parties pertaining to the Project hereof and is intended as a complete and exclusive statement of promises, representations, discussions and agreements oral or otherwise that have been made in connection therewith. No modifications or amendment to this Agreement shall be binding upon the parties unless the same is in writing, conforms to Fulton County Purchasing Code, Division 6 governing change orders, is signed by the County's and the Contractor's duly authorized representatives, and entered upon the meeting minutes of the Fulton County Board of Commissioners.

If any portion of the Contract Documents shall be in conflict with any other portion, the various documents comprising the Contract Documents shall govern in the following order of precedence: 1) the Agreement, 2) the Bid document, 3) any Addenda, 4) change orders, 5) the exhibits, and 6) portions of Contractor's proposal that was accepted by the County and made a part of the Contract Documents.

The Agreement was approved by the Fulton County Board of Commissioners on **[Insert Board of Commissioners approval date and item number]**.

ARTICLE 2. SEVERABILITY

If any provision of this Agreement is held to be unenforceable for any reason, the unenforceability thereof shall not affect the remainder of the Agreement, which shall remain in full force and effect, and enforceable in accordance with its terms.

ARTICLE 3. DESCRIPTION OF PROJECT

County and Contractor agree the Project is to perform all materials, labor, tools, equipment and appurtenances necessary for installation of an automation system for chiller and Air Handling Unit (AHU) integration for the Fulton County Government Center and Justice Center Complex buildings. All exhibits referenced in this agreement are incorporated by reference and constitute an integral part of this Agreement as if they were contained herein.

ARTICLE 4. SCOPE OF WORK

Unless modified in writing by both parties in the manner specified in the agreement, duties of Contractor shall not be construed to exceed those services specifically set forth herein. Contractor agrees to provide all services, products, and data and to perform all tasks described in Exhibit C, Scope of Work.

ARTICLE 5. SERVICES PROVIDED BY COUNTY

Contractor shall gather from County all available non-privileged data and information pertinent to the performance of the services for the Project. Certain services as described in Exhibit C, Scope of Work, if required, will be performed and furnished by County in a timely manner so as not to unduly delay Contractor in the performance of said obligations. County shall have the final decision as to what data and information is pertinent.

County will appoint in writing a County authorized representative with respect to work to be performed under this Agreement until County gives written notice of the appointment of a successor. The County's authorized representative shall have complete authority to transmit instructions, receive information, and define County's policies, consistent with County rules and regulations. Contractor may rely upon written consents and approvals signed by County's authorized representative that are consistent with County rules and regulations.

ARTICLE 6. MODIFICATIONS

If during the course of performing the Project, County and Contractor agree that it is necessary to make changes in the Project as described herein and referenced exhibits, such changes will be incorporated by written amendments in the form of Change Orders to this Agreement. Any such Change Order and/or supplemental agreement shall not become effective or binding unless approved by the Board of Commissioners and entered on the minutes. Such modifications shall conform to the requirements of the Fulton County Purchasing Code, Division 6, which is incorporated by reference herein.

ARTICLE 7. SCHEDULE OF WORK

Contractor shall not proceed to furnish such services and County shall not become obligated to pay for same until a written authorization to proceed (Notice to Proceed) has been sent to Contractor from County. The Contractor shall begin work under this Agreement no later than five (5) days after the effective date of notice to proceed.

ARTICLE 8. CONTRACT TERM

The contract will commence as of the date indicated in the Notice to Proceed (NTP) and will terminate **One Thousand Ninety-five (1,095)** calendar days from the NTP.

ARTICLE 9. COMPENSATION

Compensation for work performed by Contractor on Project shall be in accordance with the payment provisions and compensation schedule, attached as Exhibit C, Compensation.

The total contract amount for the Project shall not exceed *[Insert amount approved by BOC]*, which is full payment for a complete scope of work/services.

ARTICLE 10. PERSONNEL AND EQUIPMENT

Contractor shall designate in writing a person(s) to serve as its authorized representative(s) who shall have sole authority to represent Contractor on all manners pertaining to this contract.

Contractor represents that it has secured or will secure, at its' own expense, all equipment and personnel necessary to complete this Agreement, none of whom shall be employees of or have any contractual relationship with County. All of the services required hereunder will be performed by Contractor under his supervision and all personnel engaged in the work shall be fully qualified and shall be authorized or permitted under law to perform such services.

Written notification shall be immediately provided to County upon change or severance of any of the authorized representative(s), listed key personnel or subcontractor performing services on this Project by Contractor. No changes or substitutions shall be permitted in Contractor's key personnel or subcontractor as set forth herein without the prior written approval of the County. Requests for changes in key personnel or subcontractors will not be unreasonably withheld by County.

ARTICLE 11. SUSPENSION OF WORK

Suspension Notice: The County may by written notice to the Contractor, suspend at any time the performance of all or any portion of the services to be performed under this Agreement. Upon receipt of a suspension notice, the Contractor must, unless the notice requires otherwise:

- 1) Immediately discontinue suspended services on the date and to the extent specified in the notice;

- 2) Place no further orders or subcontracts for material, services or facilities with respect to suspended services, other than to the extent required in the notice; and
- 3) Take any other reasonable steps to minimize costs associated with the suspension.

Notice to Resume: Upon receipt of notice to resume suspended services, the Contractor will immediately resume performance under this Agreement as required in the notice.

ARTICLE 12. DISPUTES

Except as otherwise provided in this Agreement, any dispute concerning a question of fact arising under this contract, which is not disposed of by agreement, shall be decided by the **Facilities and Transportation Services Department's** designated representative. The representative shall reduce the decision to writing and mail or otherwise furnish a copy thereof to the Contractor. The Contractor shall have thirty (30) days from date the decision is sent to appeal the decision to the County Manager or his designee by mailing or otherwise furnishing to the County Manager or designee, copy of the written appeal. The decision of the County Manager or his designee for the determination of such appeal shall be final and conclusive. This condition shall not be pleaded in any suit involving a question of fact arising under this Agreement, unless the same is fraudulent, or capricious, or arbitrary, or so grossly erroneous as necessarily to imply bad faith, or is not supported by substantial evidence. In connection with any appeal proceeding under this clause, Contractor shall be afforded an opportunity to be heard and to offer evidence in support of an appeal. Pending any final decision of a dispute hereunder, Contractor shall proceed diligently with performance of the Agreement and in accordance with the decision of the **Facilities and Transportation Services Department's** designated representative.

ARTICLE 13. TERMINATION OF AGREEMENT FOR CAUSE

- (1) Either County or Contractor may terminate work under this Agreement in the event the other party fails to perform in accordance with the provisions of the Agreement. Any party seeking to terminate this Agreement is required to give thirty (30) days prior written notice to the other party.
- (2) Notice of termination shall be delivered by certified mail with receipt for delivery returned to the sender.
- (3) **TIME IS OF THE ESSENCE** and if the Contractor refuses or fails to perform the work as specified in Exhibit C, Scope of Work and maintain the scheduled level of effort as proposed, or any separable part thereof, with such diligence as will insure completion of the work within the specified time period, or any extension or tolling there of, or fails to

complete said work within such time. The County may exercise any remedy available under law or this Agreement. Failure to maintain the scheduled level of effort as proposed or deviation from the aforesaid proposal without prior approval of County shall constitute cause for termination

- (4) The County may, by written notice to Contractor, terminate Contractor's right to proceed with the Project or such part of the Project as to which there has been delay. In such event, the County may take over the work and perform the same to completion, by contract or otherwise, and Contractor shall be required to provide all copies of finished or unfinished documents prepared by Contractor under this Agreement.
- (5) Contractor shall be entitled to receive compensation for any satisfactory work completed on such documents as reasonably determined by the County.
- (6) Whether or not the Contractor's right to proceed with the work has been terminated, the Contractor shall be liable for any damage to the County resulting from the Contractor's refusal or failure to complete the work within the specified time period, and said damages shall include, but not be limited to, any additional costs associated with the County obtaining the services of another Contractor to complete the project.

ARTICLE 14. TERMINATION FOR CONVENIENCE OF COUNTY

Notwithstanding any other provisions, the County may terminate this Agreement for its convenience at any time by a written notice to Contractor. If the Agreement is terminated for convenience by the County, as provided in this article, Contractor will be paid compensation for those services actually performed. Partially completed tasks will be compensated for based on a signed statement of completion to be submitted by Contractor which shall itemize each task element and briefly state what work has been completed and what work remains to be done.

If, after termination, it is determined that the Contractor was not in default, or that the default was excusable, the rights and obligations of the parties shall be the same as if the termination had been issued for the convenience of the government.

ARTICLE 15. WAIVER OF BREACH

The waiver by either party of a breach or violation of any provision of this Agreement, shall not operate or be construed to be, a waiver of any subsequent breach or violation of the same or other provision thereof.

ARTICLE 16. INDEPENDENT CONTRACTOR

Contractor shall perform the services under this Agreement as an independent contractor and nothing contained herein shall be construed to be inconsistent with such relationship or status. Nothing in this Agreement shall be interpreted or construed to constitute Contractor or any of its agents or employees to be the agent, employee or representative of County.

ARTICLE 17. RESPONSIBILITY OF CONTRACTOR

Contractor represents that it has, or will secure at its own expenses, all personnel appropriate to perform all work to be completed under this Agreement;

All the services required hereunder will be performed by Contractor or under the direct supervision of Contractor. All personnel engaged in the Project by Contractor shall be fully qualified and shall be authorized or permitted under applicable State and local law to perform such services.

None of the work or services covered by this Agreement shall be transferred, assigned, or subcontracted by Contractor without the prior written consent of the County.

ARTICLE 18. INDEMNIFICATION

Contractor hereby agrees to release, indemnify, defend and hold harmless Fulton County, its Commissioners, officers, employees, subcontractors, successors, assigns and agents, from and against any and all losses (including death), claims, damages, liabilities, costs and expenses (including but not limited to all actions, proceedings, or investigations in respect thereof and any costs of judgments, settlements, court costs, attorney's fees or expenses, regardless of the outcome of any such action, proceeding, or investigation), caused by, relating to, based upon or arising out of any act or omission by Contractor, its directors, officers, employees, subcontractors, successors, assigns or agents, or otherwise in connection (directly or indirectly) with its acceptance, or the performance, or nonperformance, of its obligations under these agreements. Such obligations shall not be construed to negate, abridge or otherwise reduce any other rights or obligations of indemnity which would otherwise exist as to any party or person as set forth in this paragraph.

Contractor obligation to protect, defend, indemnify and hold harmless, as set forth hereinabove, shall also include, but is not limited to, any matter arising out of any actual or alleged infringement of any patent, trademark, copyright, or service mark, or other actual or alleged unfair competition disparagement of product or service, or other tort or any type whatsoever, or any actual or alleged violation of trade regulations.

Contractor further agrees to protect, defend, indemnify and hold harmless Fulton County, its Commissioners, officers, employees, subcontractors, successors, assigns and agents from and against any and all claims or liability for compensation under the Worker's Compensation Act, Disability Benefits Act, or any other employee benefits act arising out of injuries sustained by any employees of Contractor. These indemnities shall not be limited by reason of the listing of any insurance coverage.

These indemnity provisions are for the protection of the County indemnities only and shall not establish, of themselves, any liability to third parties. The provisions of this article shall survive termination of this Agreement.

ARTICLE 19. COVENANT AGAINST CONTINGENT FEES

Contractor warrants that no person or selling agency has been employed or retained to solicit or secure this Agreement upon an agreement or understanding for a commission, percentage, brokerage or contingent fee, excepting bona fide employees maintained by Contractor for the purpose of securing business and that Contractor has not received any non-County fee related to this Agreement without the prior written consent of County. For breach or violation of this warranty, County shall have the right to annul this Agreement without liability or at its discretion to deduct from the Contract Price or consideration the full amount of such commission, percentage, brokerage or contingent fee.

ARTICLE 20. INSURANCE

Contractor agrees to obtain and maintain during the entire term of this Agreement, all of the insurance required as specified in the Agreement documents, Exhibit G, Insurance and Risk Management Forms, with the County as an additional insured and shall furnish the County a Certificate of Insurance showing the required coverage. The cancellation of any policy of insurance required by this Agreement shall meet the requirements of notice under the laws of the State of Georgia as presently set forth in the Georgia Code.

ARTICLE 21. PROHIBITED INTEREST

Section 21.01 Conflict of interest:

Contractor agrees that it presently has no interest and shall acquire no interest direct or indirect that would conflict in any manner or degree with the performance of its service hereunder. Contractor further agrees that, in the performance of the Agreement, no person having any such interest shall be employed.

Section 21.02 **Interest of Public Officials:**

No member, officer or employee of County during his tenure shall have any interest, direct or indirect, in this Agreement or the proceeds thereof.

ARTICLE 22. **SUBCONTRACTING**

Contractor shall not subcontract any part of the work covered by this Agreement or permit subcontracted work to be further subcontracted without prior written approval of County.

ARTICLE 23. **ASSIGNABILITY**

Contractor shall not assign or subcontract this Agreement or any portion thereof without the prior expressed written consent of County. Any attempted assignment or subcontracting by Contractor without the prior expressed written consent of County shall at County's sole option terminate this Agreement without any notice to Contractor of such termination. Contractor binds itself, its successors, assigns, and legal representatives of such other party in respect to all covenants, agreements and obligations contained herein.

ARTICLE 24. **ANTI-KICKBACK CLAUSE**

Salaries of engineers, surveyors, draftsmen, clerical and technicians performing work under this Agreement shall be paid unconditionally and not less often than once a month without deduction or rebate on any account except only such payroll deductions as are mandatory by law. Contractor hereby promises to comply with all applicable "Anti-Kickback" Laws, and shall insert appropriate provisions in all subcontracts covering work under this Agreement.

ARTICLE 25. **AUDITS AND INSPECTORS**

At any time during normal business hours and as often as County may deem necessary, Contractor shall make available to County and/or representatives of the County for examination all of its records with respect to all matters covered by this Agreement.

It shall also permit County and/or representative of the County to audit, examine and make copies, excerpts or transcripts from such records of personnel, conditions of employment and other data relating to all matters covered by this Agreement. Contractor's records of personnel, conditions of employment, and financial statements (hereinafter "Information") constitute trade secrets and are considered confidential and proprietary by Contractor. To the extent County audits or examines such Information related to this Agreement, County shall not disclose or otherwise make available to third parties any such Information without Contractor's prior written consent unless required to do so by a court order. Nothing in this Agreement shall be construed as granting County any right to

make copies, excerpts or transcripts of such information outside the area covered by this Agreement without the prior written consent of Contractor. Contractor shall maintain all books, documents, papers, accounting records and other evidence pertaining to costs incurred on the Project and used in support of its proposal and shall make such material available at all reasonable times during the period of the Agreement and for eight years from the date of final payment under the Agreement, for inspection by County or any reviewing agencies and copies thereof shall be furnished upon request and at no additional cost to County. Contractor agrees that the provisions of this Article shall be included in any Agreements it may make with any subcontractor, assignee or transferee.

ARTICLE 26. ACCOUNTING SYSTEM

Contractor shall have an accounting system, which is established, and maintaining in accordance with generally accepted accounting principles. Contractor must account for cost in a manner consistent with generally accepted accounting procedures, as approved by Fulton County.

ARTICLE 27. VERBAL AGREEMENT

No verbal agreement or conversation with any officer, agent or employee of County either before, during or after the execution of this Agreement, shall affect or modify any of the terms of obligations herein contained, nor shall such verbal agreement or conversation entitle Contractor to any additional payment whatsoever under the terms of this Agreement. All changes to this shall be in writing and the form of a change order in supplemental agreement, approved by the County, and entered on the Minutes of the Board of Commissioners.

ARTICLE 28. NOTICES

All notices shall be in writing and delivered in person or transmitted by certified mail, postage prepaid.

Notice to County, shall be addressed as follows:

Building Mechanical Manager
Facilities and Transportation Services Department
141 Pryor Street, SE, Suite G-119
Atlanta, Georgia 30303
Telephone: (404) 612-6586
E-mail: Vijay.Nair@fultoncountyga.gov
Attention: Vijay Nair

With a copy to:

Department of Purchasing & Contract Compliance Director
130 Peachtree Street, S.W., Suite 1168
Atlanta, Georgia 30303
Telephone: (404) 730-5800
E-mail: felicia.strong-whitaker@fultoncountyga.gov
Attention: Felicia Strong-Whitaker

Notices to Contractor shall be addressed as follows:

[Insert Contractor Representative for project]

[Insert Contractor Address]

Telephone:

Email:

Attention: **[Insert Contractor Representative for project]**

ARTICLE 29. JURISDICTION

This Agreement will be executed and implemented in Fulton County. Further, this Agreement shall be administered and interpreted under the laws of the State of Georgia. Jurisdiction of litigation arising from this Agreement shall be in the Fulton County Superior Courts. If any part of this Agreement is found to be in conflict with applicable laws, such part shall be inoperative, null and void insofar as it is in conflict with said laws, but the remainder of this Agreement shall be in full force and effect.

Whenever reference is made in the Agreement to standards or codes in accordance with which work is to be performed, the edition or revision of the standards or codes current on the effective date of this Agreement shall apply, unless otherwise expressly stated.

ARTICLE 30. EQUAL EMPLOYMENT OPPORTUNITY

During the performance of this Agreement, Contractor agrees as follows:

Section 30.01 Contractor will not discriminate against any employee or applicant for employment because of race, creed, color, sex or national origin;

Section 30.02 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, creed, color, sex or national origin;

Section 30.03 Contractor will cause the foregoing provisions to be inserted in all subcontracts for any work covered by the Agreement so that such provision 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.

ARTICLE 31. FORCE MAJEURE

Neither County nor Contractor shall be deemed in violation of this Agreement if either is prevented from performing its obligations hereunder for any reason beyond its control, including but not limited to acts of God, civil or military authority, act of public enemy, accidents, fires, explosions, earthquakes, floods or catastrophic failures of public transportation, provided however, that nothing herein shall relieve or be construed to relieve Contractor from performing its obligations hereunder in the event of riots, rebellions or legal strikes.

ARTICLE 32. OPEN RECORDS ACT

The Georgia Open Records Act, O.C.G.A. Section 50-18-70 et seq., applies to this Agreement. The Contractor acknowledges that any documents or computerized data provided to the County by the Contractor may be subject to release to the public. The Contractor also acknowledges that documents and computerized data created or held by the Contractor in relation to the Agreement may be subject to release to the public, to include documents turned over to the County. The Contractor shall cooperate with and provide assistance to the County in rapidly responding to Open Records Act requests. The Contractor shall notify the County of any Open Records Act requests no later than 24 hours following receipt of any such requests by the Contractor. The Contractor shall promptly comply with the instructions or requests of the County in relation to responding to Open Records Act requests.

ARTICLE 33. CONTRACTOR'S COMPLIANCE WITH ALL ASSURANCES OR PROMISES MADE IN RESPONSE TO PROCUREMENT

Where the procurement documents do not place a degree or level of service relating to the scope of work, M/FBE participation, or any other matter relating to the services being procured, should any Contractor submit a response to the County promising to provide a certain level of service for the scope of work, M/FBE participation, or any other matter, including where such promises or assurances are greater than what is required by the procurement documents, and should this response containing these promises or assurances be accepted by the County and made a part of the Contract Documents, then the degree or level of service promised relating to the scope of work, M/FBE participation, or other matter shall be considered to be a material part of the Agreement between the Contractor and the County, such that the Contractor's failure to provide the agreed upon degree or level of service or participation shall be a material breach of the Agreement giving the County just cause to terminate the Agreement for cause, pursuant to ARTICLE 14 of the Agreement.

ARTICLE 34. INVOICING AND PAYMENT

Contractor shall submit monthly invoices for work performed during the previous calendar month, in a form acceptable to the County and accompanied by all support documentation requested by the County, for payment and for services that were completed during the preceding phase. The County shall review for approval of said invoices. The County shall have the right not to pay any invoice or part thereof if not properly supported, or if the costs requested or a part thereof, as determined by the County, are reasonably in excess of the actual stage of completion.

Time of Payment: Invoices for payment shall be submitted to County by the first (1st) calendar day of the month to facilitate processing for payment in that same month. Invoices received after the first (1st) calendar day of the month may not be paid until the last day of the following month. The County shall make payments to Contractor by U.S. mail approximately thirty (30) days after receipt of a proper invoice. Parties hereto expressly agree that the above contract term shall supersede the rates of interest, payment periods, and contract and subcontract terms provided for under the Georgia Prompt Pay Act, O.C.G.A. 13-11-1 et seq., pursuant to 13-11-7(b), and the rates of interest, payment periods, and contract and subcontract terms provided for under the Prompt Pay Act shall have no application to this Agreement; parties further agree that the County shall not be liable for any interest or penalty arising from late payments.

Submittal of Invoices: Contractor shall submit all invoices in original and one (1) copy to:

Building Mechanical Manager
Facilities and Transportation Services Department
141 Pryor Street, SE, Suite G-119
Atlanta, Georgia 30303
Telephone: (404) 612-6586
Facsimile: (404) 893-6368
E-mail: Vijay.Nair@fultoncountyga.gov
Attention: Vijay Nair

Contractor's cumulative invoices shall not exceed the total not-to-exceed fee established for this Agreement.

County's Right to Withhold Payments: The County may withhold payments for services that involve disputed costs, involve disputed audits, or are otherwise performed in an inadequate fashion. Payments withheld by the County will be released and paid to the Contractor when the services are subsequently performed adequately and on a timely basis, the causes for disputes are reconciled or any other remedies or actions stipulated by the County are satisfied. The County shall promptly pay any undisputed items contained in such invoices.

Payment of Sub-contractors/Suppliers: The Contractor must certify in writing that all sub-contractors of the Contractor and suppliers have been promptly paid for work and materials and previous progress payments received. In the event the prime Contractor is unable to pay sub-contractors or suppliers until it has received a progress payment from Fulton County, the prime Contractor shall pay all sub-contractors or supplier funds due from said progress payments within forty-eight (48) hours of receipt of payment from Fulton County and in no event later than fifteen days as provided for by State Law.

Acceptance of Payments by Contractor; Release. The acceptance by the Contractor of any payment for services under this Agreement will, in each instance, operate as, and be a release to the County from, all claim and liability to the Contractor for work performed or furnished for or relating to the service for which payment was accepted, unless the Contractor within five (5) days of its receipt of a payment, advises the County in writing of a specific claim it contends is not released by that payment.

ARTICLE 35. TAXES

The Contractor shall pay all sales, retail, occupational, service, excise, old age benefit and unemployment compensation taxes, consumer, use and other similar taxes, as well as any other taxes or duties on the materials, equipment, and labor for the work provided by the Contractor which are legally enacted by any municipal, county, state or federal authority, department or agency at the time bids are received, whether or not yet effective. The Contractor shall maintain records pertaining to such taxes as well as payment thereof and shall make the same available to the County at all reasonable times for inspection and copying. The Contractor shall apply for any and all tax exemptions which may be applicable and shall timely request from the County such documents and information as may be necessary to obtain such tax exemptions. The County shall have no liability to the Contractor for payment of any tax from which it is exempt.

ARTICLE 36. PERMITS, LICENSES AND BONDS

All permits and licenses necessary for the work shall be secured and paid for by the Contractor. If any permit, license or certificate expires or is revoked, terminated, or suspended as a result of any action on the part of the Contractor, the Contractor shall not be entitled to additional compensation or time.

ARTICLE 37. NON-APPROPRIATION

This Agreement states the total obligation of the County to the Contractor for the calendar year of execution. Notwithstanding anything contained in this Agreement, the obligation of the County to make payments provided under this Agreement shall be subject to annual appropriations of funds thereof by the governing body of the County and such obligation shall not constitute a pledge of the full faith and credit of the County within the meaning of any constitutional debt limitation. The Director of Finance shall deliver written notice to the Contractor in the event the County does not intend to budget funds for the succeeding Contract year.

Notwithstanding anything contained in this Agreement, if sufficient funds have not been appropriated to support continuation of this Agreement for an additional calendar year or an additional term of the Agreement, this Agreement shall terminate absolutely and without further obligation on the part of the County at the close of the calendar year of its execution and at the close of each succeeding calendar year of which it may be renewed, unless a shorter termination period is provided or the County suspends performance pending the appropriation of funds.

ARTICLE 38. WAGE CLAUSE

Contractor shall agree that in the performance of this Agreement the Contractor will comply with all lawful agreements, if any, which the Contractor had made with any association, union, or other entity, with respect to wages, salaries, and working conditions, so as not to cause inconvenience, picketing, or work stoppage.

Signatures on the next page

IN WITNESS THEREOF, the Parties hereto have caused this Contract to be executed by their duly authorized representatives as attested and witnessed and their corporate seals to be hereunto affixed as of the day and year date first above written.

OWNER:

FULTON COUNTY, GEORGIA

CONTRACTOR:

[Insert Contractor COMPANY NAME]

John H. Eaves, Commission Chair
Board of Commissioners

[Insert Name & Title of person authorized to sign contract]

ATTEST:

ATTEST:

Mark Massey
Clerk to the Commission (Seal)

Secretary/
Assistant Secretary

(Affix Corporate Seal)

APPROVED AS TO FORM:

Office of the County Attorney

APPROVED AS TO CONTENT:

David L. Ricks, Director
Facilities and Transportation Services
Department

ADDENDA

EXHIBIT A

GENERAL CONDITIONS

EXHIBIT B

SPECIAL CONDITIONS

EXHIBIT C

SCOPE OF WORK

EXHIBIT D
COMPENSATION

EXHIBIT E

PURCHASING FORMS

EXHIBIT F

CONTRACT COMPLIANCE FORMS

EXHIBIT G

INSURANCE AND RISK MANAGEMENT FORMS

EXHIBIT H

PAYMENT & PERFORMANCE BONDS

INSTRUCTIONS TO BIDDERS

1. CONTRACT DOCUMENTS

The Contract Documents include the Contract Agreement, Contractor's Bid (including all documentation accompanying the Bid and any post-Bid documentation required by the County prior to the Notice of Award), Bonds, all Special Conditions, General Conditions, Supplementary Conditions, Specifications, Drawings and addenda, together with written amendments, change orders, field orders and the Construction Manager's written interpretations and clarifications issued in accordance with the General Conditions on or after the date of the Contract Agreement.

Shop drawing submittals reviewed in accordance with the General Conditions, geotechnical investigations and soils report and drawings of physical conditions in or relating to existing surface structures at or contiguous to the site are not Contract Documents.

The Contract Documents shall define and describe the complete work to which they relate.

2. BID PREPARATION

Bidders shall **SUBMIT ONE (1) ORIGINAL, SIGNED AND DATED, AND FIVE (5) COPIES** on the forms provided in the Bid Document.

All bids must be made on the bid forms contained herein and shall be subject to all requirements of the Agreement Documents. All bids must be regular in every respect and no interlineations, excisions, or special conditions shall be made or included in the bid by the Bidder.

Lump sum, unit price and extensions of unit prices must be entered in the appropriate spaces provided on the Bid Schedule/Bid Form. Unit prices shall include an appropriate allocation of overhead and other indirect costs so that the summation of unit price extensions and lump sum items represents the total bid amount. All blank spaces must be typed or hand written in blue ink on the "Original". All dollar amounts must be BOTH in writing and figures and represent prices for the published scope of work without exceptions.

The County may, in its sole discretion, reject any bid determined as irregular, a conditional bid or any bid on which there is an alteration of, or departure from the Bid Schedule attached.

Erasures or other changes in the bids must be explained or noted over the signature of the Bidder. All corrections to any entry must be lined out and initialed by the Bidder. Please do not use correction tapes or fluid. Failure to do so shall render the Bidder as non-responsive and cause rejection of the bid.

Failure to execute the Bid Schedule/Bid Form documents may result in Bidder being deemed non-responsive and cause rejection of the bid.

3. RECEIPT AND OPENING OF BIDS

Sealed bids will be received by the Fulton County Department of Purchasing & Contract Compliance at Fulton County Public Safety Building, 130 Peachtree Street, S.W., Suite 1168 Atlanta, Georgia 30303. The original signed Bid with three (3) copies shall be submitted in a sealed envelope, addressed to the Department of Purchasing and Contract Compliance and labeled **14ITB041414K-NH – Building Automation System – Government and Justice Center Complex Buildings.**

REQUIRED SUBMITTALS: The bidder **must complete and execute** the following:

1. Bid Form
2. Acknowledgement of each Addendum
3. Bid Bond
4. Purchasing Forms (See Submittal Check List at end of this Section), fully executed
5. Contract Compliance Forms (See Submittal Check List at end of this Section), fully executed
6. Risk Management Insurance Provisions Form

Any bids received after the stated time and date will not be considered. It shall be the sole responsibility of the bidder to have his/her bid delivered to the Fulton County Department of Purchasing and Contract Compliance for receipt on or before the stated time and date (see Section 00020). If a bid is sent by U.S. Mail, the bidder shall be responsible for its timely delivery to the Purchasing Department. Bids delayed by mail will not be considered, shall not be opened, and arrangements shall be made for their return at the bidder's request and expense.

Bid shall be publicly opened, with only the names and total bid price of the bidders disclosed at the opening.

4. ADDENDA AND INTERPRETATIONS

No interpretations of the meaning of the Drawings, Specifications or other pre-bid documents will be made to any Bidder orally.

Bidders requiring clarification or interpretation of the Contract Documents shall make a request in writing, either by mail, hand delivery, e-mail or fax, to the Purchasing Agent at the address below. To be given consideration, requests must be received no later than **10:00 AM, May 12, 2014**. The County will not respond to any requests, oral or written, received after this date. Telephone inquiries will not be accepted.

Department of Purchasing and Contract Compliance
Attn: Nancy Harrison, Assistant Purchasing Agent
Fulton County Public Safety Building
130 Peachtree Street, S.W., 1168
Atlanta, GA 30303
Fax: (404) 893-1744
Nancy.Harrison@fultoncountyga.gov
Bid # 14ITB041414K-NH

Only communications from firms that are in writing and signed will be recognized by the County as duly authorized expressions on behalf of proposers/bidders. Any and all such interpretations and any supplemental instructions will be in the form of written Addenda to the Specifications which, if any addend are issued to this Invitation to Bid.

Failure of Bidders to receive or acknowledge any Addendum shall not relieve them of any obligation under the Bid. All Addenda shall become part of the Contract Documents.

5. SITE EXAMINATION (MANDATORY)

There will be a site visit for this project on **May 9, 2014 immediately following the Pre-Bid Conference.**

6. BIDDER'S MODIFICATION AND WITHDRAWAL OF BIDS

A Bidder may modify or withdraw its bid by written request, provided that the request is received by the County prior to the bid due date and time at the address to which bids are to be submitted. Provided further, that in case of an electronic request (i.e. facsimile, e-mail, etc.) a written confirmation thereof over the authorized signature of the Bidder must be received by the County at the address to which original Bids are to be submitted within three (3) calendar days after issue of the electronic message. Following withdrawal of its bid, the Bidder may submit a new bid, providing delivery is affected prior to the established bid opening date and time. **No bid may be withdrawn after bid due date for sixty (60) calendar days.**

7. BID AND CONTRACT SECURITY

A Bid Bond for an amount equal to five percent (5%) of the bid amount must accompany each Proposal. The bid bond shall be submitted in a separate, sealed envelope marked "Bid Bond".

Bids must be accompanied by a bid bond or certified check in an amount of five percent (5%) of the TOTAL AMOUNT of the base bid. The bid bond or certified check shall apply ONLY TO THIS BID. The bid name and contract number must appear on the security instrument. The bond must remain in full force and effect until the Bidder executes the final Contract. Bids not satisfying the bonding requirements of this project will be declared non-responsive.

Any bid bond, performance bond, payment bond, or security deposit required for public works construction contract shall be approved and filed with purchasing agent. At the option of the County, if the surety named in the bond is other than a surety company authorized by law to do business in this state pursuant to a current certificate of authority to transact surety business by the Commissioner of Insurance, such bond shall not be approved and filed unless such surety is on the United States Department of Treasury's list of approved bond sureties.

A Purchasing Agent shall approve as to form and as to the solvency of the surety any bid bond, performance bond, or payment bond required by this. In the case of a bid bond, such approval shall be obtained prior to acceptance of the bid or proposal. In the case of payment bonds and performance bonds, such approval shall be obtained prior to the execution of the contract.

Whenever, in the judgment of the County:

- (1) Any surety on a bid, performance, or payment bond has become insolvent;
- (2) Any corporation surety is no longer certified or approved by the Commissioner of Insurance to do business in the state; or
- (3) For any cause there are no longer proper or sufficient sureties on any or all the bonds

The County may require the contractor to strengthen any or all of the bonds or to furnish a new or additional bond or bonds within ten days. Thereupon, if so ordered by the County, all work on the contract shall cease unless such new or additional bond or bonds are furnished. If such bond or bonds are not furnished within such time, the County may terminate the contract and complete the same as the agent of and at the expense of the contractor and his or her sureties.

As a condition of responsiveness the bidder must contain a Bid Bond for an amount equal to 5% of the bid amount. The Bid Bond shall be included in a separate envelope marked on the outside "Bid Bond". Checks or letters of credit of any type will not be accepted. A certified cashier's check will be acceptable. Provide a completed and fully executed Bid Bond. When the bidder's package is opened, a purchasing agent will verify the presence of the Bid Bond and remove it from the Proposal Package.

If the bidder withdraws its bid from the competition after the selection of its bid for a reason not authorized by Georgia law, the County will proceed on the Bid Bond, along with any other available remedies.

The Surety of the Bid Bond shall be from a surety company authorized to do business in the State of Georgia, shall be listed in the Department of Treasury Circular 570, and shall have an underwriting limitation in excess of 100% of the bid amount. The Bonds and Surety shall be subject to approval by the County Attorney.

Attorneys-in-fact for bidders who sign bid bonds or contract bonds must file with each bond a certified and effectively dated copy of their power of attorney.

8. SURETY BONDS

The submission of surety bonds subsequent to the Bid submission shall be:

- a. Any surety bond submitted in accordance with the Bid or Agreement requirements must be issued by a corporate surety company satisfactory to the Commission and authorized to act as such in the State of Georgia;
- b. Such bonds shall conform to the forms provided with the Bid Documents and be completed in accordance with the instructions thereon; and
- c. In accordance with Georgia law, and upon award of the Agreement, separate performance and payment bonds shall be required of the successful Bidder, each in an amount not less than the total amount payable under the Agreement. The performance bond shall remain in effect for one (1) year after final acceptance of the Work or the guaranty period under the Agreement, whichever is the larger.

The payment bond shall remain in effect for the period required under Georgia law for the payment bonds on public construction agreements. Reference is made to the bond forms and the Agreement Documents for additional particulars of the terms required in the bonds. In the case of any inconsistency between the Bond Forms and Georgia law, the law shall control. Alterations, extension of the time allowed for performance, extra and additional Work, and other changes authorized under the Agreement may be made without notice to or consent of the surety or sureties.

9. INSURANCE REQUIREMENTS

The Contractor shall procure and maintain during the life of this Agreement, Workmen's Compensation, Public Liability, Property Damage, Automobile Liability insurance and any other insurance necessary to satisfy the requirements of the Agreement Documents.

10. RIGHT TO REJECT BIDS

The County reserves the right to reject any or all bids and to waive informalities. No bids will be received after the time set for opening bids. Any unauthorized conditions, limitations or provisions attached to the Bid, except as provided herein, will render it informal and may cause its rejection. Unbalanced bids will be subject to rejection. Any bidder may withdraw his/her bid, either personally or by telegraphic or written request, at any time prior to the scheduled closing time for receipt of bids. Telegraphic or written requests for withdrawal must be in the possession of the County prior to the closing time for receipt of bids.

11. APPLICABLE LAWS

All applicable laws and regulations of the State of Georgia and ordinances and regulations of Fulton County shall apply. Protestors shall seek resolution of their

complaints in the manner provided in the Fulton County Code of Laws §2-324, which is incorporated by reference herein.

12. EXAMINATION OF CONTRACT DOCUMENTS

Prospective bidders shall examine the contract documents and before submitting a bid, shall make a written request to the County for an interpretation or correction of any ambiguity, in consistency or error therein which could be discovered by a bidder. At the bid opening each bidder shall be presumed to have read and be familiar with the contract documents.

13. BID EVALUATION

- a. Each Bid timely received and in the County's hands at the time set forth for the Bid opening shall constitute an offer to perform the Agreement on the terms and conditions thereof, in strict accordance with the Agreement documents, and all other requirements, all for the Bid total. For good cause and valuable consideration, the sufficiency of which is acknowledged by submittal of a Bid, each Bidder promises and agrees that its Bid shall be irrevocable for a period of **sixty (60) calendar days** after the Bid opening and will not be withdrawn or modified during that time. The County may accept any Bid by giving the Bidder Written Notice of acceptance during that time. If necessary, the period of time specified may be extended by written agreement between the County and the Bidder or Bidders concerned.
- b. After the Bids have been opened and before any award is made, the County will evaluate the Bid process, the Bid total, the supplements to the Bid form, Bidder's experience, proposed Subcontractors and equipment manufacturers and other data relating to Bidders' responsibility and qualifications to perform the Agreement satisfactorily.
- c. All extension of the unit prices shown and the subsequent addition of extended amounts may be verified by the County. In the event of a discrepancy between the unit price bid and the extension, the unit price will be deemed intended by the Bidder and the extension shall be adjusted. In the event of a discrepancy between the sum of the extended amounts and the bid total, the sum of the extended amounts shall govern.
- d. Bidder may be required to submit, in writing, the addresses of any proposed Subcontractors or Equipment manufacturers listed on the Bid, and to submit other material information relative to proposed Subcontractors or Equipment manufacturers. The County reserves the right to disapprove any proposed Subcontractor or Equipment manufacturers whose technical or financial ability or resources or whose experience are deemed inadequate.
- e. The County reserves the right to reject any Bid the prices of which appear to be unbalanced, and to reject any or all Bids, or parts thereof, if it determines, in its sole discretion, that such rejection is in the best interest of the Commission. Where only a single responsible and responsive Bid is received, the County may in its sole discretion, elect to conduct a price or cost analysis of the Bid. Such Bidder shall cooperate with such analysis

and provide such supplemental information as may be required. The determination whether to enter into an Agreement with such sole Bidder shall be solely within the County's discretion and not dependent upon performance of a price or cost analysis.

- f. Bids will be evaluated on the basis of determining the lowest Bid total of a Bidder, not including alternates, whose Bid is responsive to the Invitation to Bid and who is determined to be technically, financially and otherwise responsible to perform the Agreement satisfactorily, and to meet all other requirements of the Bidding Documents relating thereto. Any Bid may be rejected if it is determined by the County to be non-responsive, provided, however, that the Commission reserves the right to waive any irregularities or technicalities which it determines, within its sole discretion, to be minor in nature and in the interest of the public. Furthermore, any Bid may be rejected if it is determined by the County, in its sole discretion, that the Bidder is not capable of performing the Agreement satisfactorily based upon review of its experience and technical and financial capabilities, or the failure of such bidder to provide information requested relating to such determination. Additionally, the County reserves the right to disqualify Bids, before and after the bid opening, upon evidence of collusion with intent to defraud or other illegal practices upon the part of any Bidder(s).
- g. The County intends to award the Agreement at the earliest practicable date to the lowest responsive, responsible Bidder(s), provided that the Bid is within the funds available for the project. In addition, the Commission reserves the right to reject all Bids if it determines, in its sole discretion, that the public interest will be best served by doing so.
- h. A Pre-award Conference may be conducted with the apparent low Bidder(s) to review general requirements of the Bidding Documents.

14. **AWARD CRITERIA**

Award will be made after evaluating the prices, responsiveness and responsibility of each Bidder.

- A. **Responsiveness:** The determination of responsiveness will be determined by the following:
 - a. The completeness of all material, documents and/or information required by the County;
 - b. Whether the bidder has submitted a complete Bid form without irregularities, excisions, special conditions, or alternative bids for any item unless specifically requested in the Bid form.
- B. **Responsibility:** The determination of the bidder's responsibility will be determined by the following

- a. The ability, capacity and skill of the Bidder to perform and/or provide the Work required;
- b. The County reserves the right to reject any bid if the evidence submitted by, or investigation of, the bidder fails to satisfy the County that he/she is properly qualified to carry out the obligations of the Contract;
- c. The character, integrity, reputation, judgment, experience and efficiency of the Bidder;
- d. The quality of performance of work on previous contracts or work; Maintains a permanent place of business individually or in conjunction with the prime contractor.
- e. Has the appropriate and adequate technical experience necessary to perform the Work;
- f. Has adequate personnel and equipment to do the Work expeditiously;
- g. Has suitable financial means to meet obligations incidental to the work.

15. DISQUALIFICATION OF BIDDERS

Any of the following may be considered as sufficient for disqualification of a Bidder and the rejection of the Bid:

- a. Submission of more than one Bid for the same work by an individual, firm, partnership or Corporation under the same or different name(s);
- b. Evidence of collusion among Bidders;
- c. Previous participation in collusive bidding on Work for the County;
- d. Submission of an unbalanced Bid, in which the prices quoted for same items are out of proportion to the prices for other items;
- e. Lack of competency of Bidder. The Agreement will be awarded only to a Bidder(s) rated as capable of performing the Work.

16. BASIS OF AWARD

The Contract, if awarded, will be awarded to the lowest responsive and responsible bidder. No bid may be withdrawn for a period of sixty (60) days after the date of bid opening except as permitted by O.C.G.A., §36-91-41 et seq., as amended. Each Bid must be accompanied by a Bid Bond in accordance with the Bid Bond Requirements provided in the Contract Documents, on a Surety Company's

Standard Bid Bond Form acceptable to the County in an amount no less than five percent (5%) of the amount bid. The successful bidder will be required to furnish a Performance Bond and Payment Bond, **on or before** the issuance of Notice to Proceed, each in the amount of 100% of the Contract Amount. All other required Contract Documents must be fully completed and executed by the Contractor and

his/her Surety, and submitted to the Owner **on or before** the issuance of the Notice to Proceed.

17. PROFESSIONAL LICENSES (APPLICABLE)

The State of Georgia requires that the following professions are required by state law to be licensed:

1. Electricians
2. Plumbers
3. Conditioned Air Contractors
4. Low voltage Contractors

Bidders and any sub-contractors performing any of the above described work must provide a copy of their license for the work they will perform on this project. Bidders must complete Form C3: Georgia Professional License Certification in Section 6, Purchasing Forms **Failure to provide the required license (at time of bid submittal) may deem your bid non-responsive.**

18. WAGE CLAUSE

Pursuant to 102-391, Each Contractor shall agree that in the performance of the Contract he will comply with all lawful agreements, if any, which the Contractor had made with any association, union, or other entity, with respect to wages, salaries, and working conditions, so as not to cause inconvenience, picketing, or work stoppage.

19. NOTICE OF AWARD OF CONTRACT

As soon as possible, and within sixty (60) days after receipt of bids, the County shall notify the successful Bidder of the Award of Contract.

The award shall be made by the Board of Commissioners of Fulton County to the lowest responsive, responsible bidder(s) as soon as possible after receipt of bids, taking into consideration price and the responsiveness to the requirements set forth in the Invitation for Bid. In such case, no claim shall be made by the selected Contractor(s) for loss of profit if the contract is not awarded or awarded for less work than is indicated and for less than the amount of his bid. The total of the awarded contract shall not exceed the available funds allocated for this project.

Should the County require additional time to award the contract, the time may be extended by mutual agreement between the County and the successful bidder. If an Award of Contract has not been made within sixty (60) days from the bid date or within the extension mutually agreed upon, the Bidder may withdraw the Bid without further liability on the part of either party.

Any award made by the Board of Commissioners as a result of this bid will begin from the date of the notice to proceed. The Bidder agrees hereby to commence work under this Contract, with adequate personnel and equipment, on a date to be specified in a written order from the user department. The contract shall become effective on the Contract Date and shall continue in effect until the end of the term

of the contract or until the project has been closed-out unless earlier terminated pursuant to the termination provisions of the contract.

20. EXECUTION OF CONTRACT DOCUMENTS

Upon notification of Award of Contract, the County shall furnish the Contractor the conformed copies of Contract Documents for execution by the Contractor and Contractor's surety.

Within ten (10) days after receipt the Contractor shall return all the documents properly executed by the Contractor and the Contractor's surety. Attached to each document shall be an original power-of-attorney for the person executing the bonds for the surety and certificates of insurance for the required insurance coverage.

After receipt of the documents executed by the Contractor and his surety with the power-of-attorney and certificates of insurance, the County shall complete the execution of the documents. Distribution of the completed documents will be made upon completion.

Should the contractor and/or surety fail to execute the documents within the time specified, the County shall have the right to proceed on the Bid Bond accompanying the bid.

If the County fails to execute the documents within the time limit specified, the Contractor shall have the right to withdraw the Contractor's bid without penalty.

Should an extension of any of the time limits stated above be required, this shall be done only by mutual agreement between both parties.

Any agreement or contract resulting from the acceptance of a bid shall be on a County approved document form. The County reserves the right to reject any agreement that does not conform to the Invitation for Bid and any County requirements for agreements and contracts. The County reserves the right to modify the agreement resulting from this bid upon the recommendation of the County Attorney.

21. EQUAL EMPLOYMENT OPPORTUNITY ("EEO") IN PURCHASING AND CONTRACTING

To be eligible for award of this Agreement, the Bidder must certify and fully comply with the requirements, terms, and conditions of the County's Non Discrimination in Contracting and Procurement.

22. JOINT VENTURE

Any Bidder intending to respond to this solicitation as a joint venture must submit an executed joint venture agreement with its offer. The agreement must designate those persons or entities authorized to execute documents or otherwise bind the joint venture in all transactions with Fulton County, or be accompanied by a document, binding upon the joint venture and its constituent members, making

such designation. Offers from joint ventures that do not include these documents will be rejected as being non-responsive.

23. CONTRACTORS COMPLIANCE WITH ALL ASSURANCES AND/OR PROMISES MADE IN RESPONSE TO PROCUREMENT

Should any Bidder submit a response to the County promising to provide a certain level of service for either the scope of work, MFBE participation, or any other matter, including where such promise or assurance is greater than what is required by the procurement documents, and should this response containing the promise or assurance be accepted by the County and made a part of the Contract Documents, then this degree or level of service promised by the bidder relating to the scope of work, MFBE participation, or other matter shall be considered to be a material part of the Agreement between the bidder and the County, such that the bidder's failure to provide the agreed upon degree or level of service or participation shall be a material breach of the Agreement giving the County just cause to terminate the Agreement for cause, pursuant to the General Conditions of the Agreement.

24. GEORGIA SECURITY AND IMMIGRATION COMPLIANCE ACT

This Invitation to Bid is subject to the Georgia Security & Immigration Compliance Act. Pursuant to the Georgia Security & Immigration Compliance Act of 2006, as amended on May 11, 2009, bidders and proposers are notified that all bids/proposals for services that are to be physically performed within the State of Georgia must be accompanied by proof of their registration with and continuing and future participation in the E-Verify program established by the United States Department of Homeland Security. A completed affidavit must be submitted on the top of the bid/proposal at the time of submission, prior to the time for opening bids/proposals. Under state law, the County cannot consider any bid/proposal which does not include a completed affidavit. It is not the intent of this notice to provide detailed information or legal advice concerning the Georgia Security & Immigration Compliance Act. All bidders/proposers intending to do business with the County are responsible for independently apprising themselves and complying with the requirements of that law and its effect on County procurements and their participation in those procurements. For additional information on the E-Verify program or to enroll in the program, go to: <https://e-verify.uscis.gov/enroll>.

See Section 00420, Purchasing Forms & Instructions for declarations and affidavits.

25. SUBCONTRACTING OPPORTUNITIES

Potential prime contractors submitting a bid on this project for Fulton County and are seeking subcontractors and/or suppliers can advertise those subcontracting opportunities on the County's website, <http://www.fultoncountyga.gov> under "Subcontracting Bid Opportunities".

26. TERM OF CONTRACT

The contract will commence as of the date indicated in the Notice to Proceed (NTP) and will terminate **One Thousand Ninety-five (1,095) calendar days** from the NTP.

27. NO CONTACT PROVISION

It is the policy of Fulton County that the evaluation and award process for County contracts shall be free from both actual and perceived impropriety, and that contacts between potential vendors and County officials, elected officials and staff regarding pending awards of County contracts shall be prohibited.

- A. No person, firm, or business entity, however situated or composed, obtaining a copy of or responding to this solicitation, shall initiate or continue any verbal or written communication regarding this solicitation with any County officer, elected official, employee, or designated County representative, between the date of the issuance of this solicitation and the date of the County Manager's recommendation to the Board of Commissioners for award of the subject contract, except as may otherwise be specifically authorized and permitted by the terms and conditions of this solicitation.
- B. All verbal and written communications initiated by such person, firm, or entity regarding this solicitation, if same are authorized and permitted by the terms and conditions of this solicitation, shall be directed to the Purchasing Agent.
- C. Any violation of this prohibition of the initiation or continuation of verbal or written communications with County officers, elected officials, employees, or designated County representatives shall result in a written finding by the Purchasing Agent that the submitted Bid or proposal of the person, firm, or entity in violation is "non-responsive", and same shall not be considered for award.

28. AUTHORIZATION TO TRANSACT BUSINESS

If the Contractor is a corporation or corporations combined to form a joint venture, the corporation or members of the joint venture team, prior to Agreement execution, must submit documentary evidence from the Secretary of State that the corporation is in good standing and that the corporation is authorized to transact business in the State of Georgia.

29. PRE-WORK CONFERENCE

A pre-work conference will be held with the successful Bidder and all known Subcontractors at a time and place set by the County.

30. SUBSTITUTIONS

See Special Conditions.

31. BID GENERAL CONDITIONS

1. Proposals may be withdrawn upon receipt of a written request prior to the stated due date and time. If a firm seeks to withdraw a proposal after the due date and time, the firm must present a notarized statement indicating that an error was made, with an explanation of how it occurred. The withdrawal request must be accompanied by documentation supporting the claim. Prior to approving or disapproving the request, an opinion will be obtained from Fulton County's Legal Counsel indicating whether the firm is bound by its proposal.

Proposals for projects that are solicited pursuant to the Georgia Local Government Public Works Construction Law (O.C.G.A. § 36-91-1 et seq.) may be withdrawn as follows:

The County must advise Offerors in the request for proposals of the number of days that Offerors will be required to honor their proposals. If an Offeror is not selected within 60 days of opening the proposals, any Offeror that is determined by the governmental entity to be unlikely of being selected for contract award will be released from the proposal.

2. Fulton County shall be the sole judge of the quality and the applicability of all proposals. Design, features, overall quality, local facilities, terms and other pertinent considerations will be taken into account in determining acceptability.
3. The successful Offeror must assume full responsibility for delivery of all goods and services proposed.
4. The successful Offeror must assume full responsibility for replacement of all defective or damaged goods and/or performance of contracted services within thirty (30) days' notice by the County of such defect, damage or deficiency.
5. The successful Offeror must assume full responsibility for providing warranty service on all goods, materials, or equipment provided to the County with warranty coverage. Should a vendor be other than the manufacturer, the vendor and not the County is responsible for contacting the manufacturer. The Offeror is solely responsible for arranging for the service to be performed.
6. The successful Offeror shall be responsible for the proper training and certification of personnel used in the performance of the services proposed.
7. The successful Offeror shall not assign, transfer, convey, sublet, or otherwise dispose of any contract resulting from the RFP or of any of its rights, title or interest therein without prior written consent of the Fulton County Board of Commissioners.

8. In case of default by the successful Offeror, Fulton County may procure the articles or services from another source and hold the successful Vendor responsible for any resultant excess cost.
9. All proposals and bids submitted to Fulton County are subject to the Georgia “Open Records Act”, Official Code of Georgia, Annotated (O.C.G.A.) § 50-18-70 et seq.
10. All proposals and bids submitted to Fulton County involving Utility Contracting are subject to the Georgia law governing licensing of Utility Contractors, O.C.G.A. §43-14-8.2(h).

32. Submittals

The following submittals must be completed and submitted with the Bid Submittal. This checklist is provided to ensure that the Bidder submits certain required information with its Bid.

	Bid Submittal Check Sheet	Check (√)
1.	Georgia Security and Immigration Contractor Affidavit(s) and Agreements	
2.	Georgia Security and Immigration Subcontractor Affidavit(s)	
3.	Bid Form	
4.	Acknowledgment of Addenda	
5.	Bid Bond	
6.	Non-Collusion Affidavit	
7.	Certificate of Acceptance of Request for Bid	
8.	Georgia Utility Contractor’s License for prime contractor and <u>all</u> sub-contractors identified in the bid response (if applicable)	
9.	Georgia General Contractors License (if applicable)	
10.	Georgia Professional License (if applicable)	
11.	Certificate Regarding Debarment	
12.	Disclosure Form and Questionnaire	
13.	Office of Contract Compliance Requirements (submitted in a separate envelope)	
14.	Proof of Insurance Coverage	

BID FORM

Submitted To: Fulton County Government

Submitted By: _____

For: **Building Automation System – 14ITB041414K-NH
Government and Justice Center Complex Buildings**

Submitted on May 19, 2014.

The undersigned, as Bidder, hereby declares that the only person or persons interested in the Bid as principal or principals is or are named herein and that no other person than herein mentioned has any interest in this Bid or in the Contract to be entered into; that this Bid is made without connection with any other person, company or parties making a Bid; and that it is in all respects fair and in good faith without collusion or fraud.

The Bidder further declares that he has examined the site of the work and informed himself fully in regard to all conditions pertaining to the place where the work is to be done; that he has examined the Drawings and Specifications for the work and contractual documents relative thereto, and has read all instructions to Bidders and General Conditions furnished prior to the openings of bids; that he has satisfied himself relative to the work to be performed.

The Bidder proposes and agrees, if this Bid is accepted, to contract with the Board of Commissioners of Fulton County, Atlanta, Georgia, in the form of contract specified, to furnish all necessary materials, equipment, machinery, tools, apparatus, means of transportation and labor necessary, and to complete the construction of the work in full and complete accordance with the shown, noted, and reasonably intended requirements of the Specifications and Contract Documents to the full and entire satisfaction of the Board of Commissioners of Fulton County, Atlanta, Georgia, with a definite understanding that no money will be allowed for extra work except as set forth in the attached General Conditions and Contract Documents for the following prices.

THE BASE BID IS THE AMOUNT UPON WHICH THE BIDDER WILL BE FORMALLY EVALUATED AND WHICH WILL BE USED TO DETERMINE THE LOWEST RESPONSIBLE BIDDER.

The base bid may not be withdrawn or modified for a period of sixty (60) days following the receipt of bids.

BASE BID AMOUNT (Do not include any Bid Alternates)

\$ _____
(Dollar Amount In Numbers)

(Dollar Amount in Words)

The Bidder agrees hereby to commence work under this Contract, with adequate personnel and equipment, on a date to be specified in a written "Notice to Proceed" from the County.

The Bidder declares that he understands that the quantities shown for the unit prices items are subject to either increase or decrease, and that should the quantities of any of the items of work be increased, the Bidder proposes to do the additional work at the unit prices stated herein; and should the quantities be decreased, the Bidder also understands that payment will be made on the basis of actual quantities at the unit price bid and will make no claim for anticipated profits for any decrease in quantities; and that actual quantities will be determined upon completion of work, at which time adjustments will be made to the contract amount by direct increase or decrease.

BID FORM

Vendor agrees that the prices quoted below are for completion of work as required in the Scope of Work and in conformation to the Specifications FC-BAS-Rev 1 and DoIT Standards v5_9_3_11_Update_Version_02_03_12 (See Appendix 1)

Description	Bid Amount
1. Price for supply, installation, testing and commissioning of Direct Digital Controls and Building Automation System for integration of Chillers in Government Center.	
2. Price for supply, installation, testing and commissioning of Direct Digital Controls and Building Automation System for integration of Air-Handling Units in Government Center.	
3. Price for supply, installation, testing and commissioning of Direct Digital Controls and Building Automation System for integration of Air-Handling Units in Justice Center Complex.	
Sub-Total (Add 1-3):	\$

4. Warranty period for components, installation and performance _____ Months from the date of Commissioning.
5. Do you offer a service contract after the normal warranty period? _____ (Answer YES or NO)
6. If you offer a service contract, cost of such contract per YEAR will be \$ _____ Dollars and applicable for a period of _____ years from the date of expiration of warranty.
7. Time required for mobilization _____ consecutive or calendar days. (Circle either consecutive or calendar)
8. Time required for completion of work _____ days from the date of commencement

Total Bid Amount (Add Sub-Total plus Line 6)	\$
---	----

The Bidder furthermore agrees that, in the case of a failure on his part to execute the Contract Agreement and Bonds within ten days after receipt of conformed contract documents for execution, the Bid Bond accompanying his bid and the monies payable thereon shall be paid into the funds of the Owner as liquidated damages for such failure. Enclosed is a Bid Bond in the approved form, in the sum of:

_____ Dollars

(\$ _____) according to the conditions of "Instructions to Bidders" and provisions thereof.

The undersigned acknowledges receipt of the following addenda (list by the number and date appearing on each addendum) and thereby affirms that its Bid considers and incorporates any modifications to the originally issued Bidding Documents included therein.

ADDENDUM #	_____	DATED	_____
ADDENDUM #	_____	DATED	_____
ADDENDUM #	_____	DATED	_____
ADDENDUM #	_____	DATED	_____

BIDDER: _____

Signed by: _____
[Type or Print Name]

Title: _____

Business Address: _____

Business Phone: _____

Note: If the Bidder is a corporation, the Bid shall be signed by an officer of the corporation; if a partnership, it shall be signed by a partner. If signed by others, authority for signature shall be attached.

The full name and addresses of persons or parties interested in the foregoing Bid, as principals, are as follows:

Name	Address
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

BID BOND

No bid for a contract in Fulton County for work to be done shall be valid for any purpose unless the Contractor shall give a Bid Bond with good and sufficient surety payable to, in favor of, and for the protection of Fulton County. The Bid Bond shall not be less than 5% of the total amount payable by the terms of the Contract. No bid shall be read aloud or considered if a proper bid bond has not been submitted.

Surety companies executing Bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State of Georgia.

Attestation for the corporation must be by the corporate officer; for a partnership by another partner; for an individual by a notary with the corporate seal.

BID BOND

**14ITB041414K-NH – BUILDING AUTOMATION SYSTEM –
GOVERNMENT AND JUSTICE CENTER COMPLEX BUILDINGS**

KNOW ALL MEN BY THESE PRESENTS, THAT WE _____

hereinafter called the PRINCIPAL, and _____

hereinafter call the SURETY, a corporation chartered and existing under the laws of the State of _____ and duly authorized to transact Surety business in the State of Georgia, are held and firmly bound unto the Fulton County Government (COUNTY), in the penal sum of _____ Dollars and Cents (\$ _____) good and lawful money of the United States of America, to be paid upon demand of the COUNTY, to which payment well and truly to be made we bind ourselves, our heirs, executors, and administrators and assigns, jointly and severally and firmly by these presents.

WHEREAS the PRINCIPAL has submitted to the COUNTY, for **14ITB041414K-NH – BUILDING AUTOMATION SYSTEM – GOVERNMENT AND JUSTICE CENTER COMPLEX BUILDINGS, a Bid;**

WHEREAS the PRINCIPAL desires to file this Bond in accordance with law:

NOW THEREFORE: The conditions of this obligation are such that if the Bid be accepted, the PRINCIPAL shall within ten (10) calendar days after receipt of written notification from the COUNTY of the award of the Contract execute the Contract in accordance with the Bid and upon the terms, conditions and prices set forth therein, in the form and manner required by the COUNTY, and execute sufficient and satisfactory Performance and Payments Bonds payable to the COUNTY, each in the amount of one hundred percent (100%) of the total contract price, in form and with security satisfactory to said COUNTY, then this obligation to be void; otherwise, to be and remain in full force and virtue in law; and the SURETY shall upon failure of the PRINCIPAL to comply with any or all of the foregoing requirements within the time specified above immediately pay to the COUNTY, upon demand the amount hereof in good and lawful money of the United States of America, not as a penalty, but as liquidated damages.

In the event suit is brought upon this Bond by the COUNTY and judgment is recovered, the SURETY shall pay all costs incurred by the COUNTY in such suit, including attorney's fees to be fixed by the Court.

Enclosed is a Bid Bond in the approved form, in the amount of _____

_____ Dollars

(\$ _____) being in the amount of five percent (5%) of the Contract Sum.

The money payable on this bond shall be paid to the COUNTY, for the failure of the Bidder to execute a Contract within ten (10) days after receipt of the Contract and at the same time furnish a Payment Bond and Performance Bond.

(SIGNATURES ON NEXT PAGE)

IN TESTIMONY THEREOF, the PRINCIPAL and SURETY have caused these presents to be duly signed and sealed this _____ day of _____, 2014

ATTEST:

PRINCIPAL

BY _____

(SEAL)

CERTIFICATE AS TO CORPORATE PRINCIPAL

I, _____, certify that I am the Secretary of the Corporation named as principal in the within bond; that _____, who signed the said bond of said corporation; that I know this signature, and his/her signature thereto is genuine; and that said bond was duly signed, sealed and attested for in behalf of said Corporation by authority of its governing body.

SECRETARY

(CORPORATE SEAL)

SURETY

BY _____

(SEAL)

PAYMENT BOND

No Contract with Fulton County for work to be done shall be valid for any purpose unless the Contractor provides a Payment Bond with good and sufficient surety payable to Fulton County for the use and protection of all sub-contractors and all persons supplying labor, materials, machinery, and equipment in the prosecution of the work provided for in the Contract. The Payment Bond shall be in the amount of 100% of the total contract amount, payable by the terms of the Contract, and shall be written on the following form.

Surety companies executing Bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State of Georgia.

Attestation for the corporation must be by the corporate officer; for a partnership by another partner; for an individual by a notary with the corporate seal.

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS that _____
(hereinafter called the "Principal") and _____
(hereinafter called the "Surety"), are held and firmly bound unto **FULTON COUNTY**, a political subdivision of the State of Georgia (hereinafter called the "Owner"), its successors and assigns as obligee, in the penal sum of _____ [100% of Contract amount], lawful money of the United States of America, for the payment of which the Principal and the Surety bind themselves, their administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered, or is about to enter, into a certain written contract with the Owner, dated _____, which is incorporated herein by reference in its entirety (hereinafter called the "Contract"), for construction-type services of a project known as **14ITB041414K-NH BUILDING AUTOMATION SYSTEM – GOVERNMENT AND JUSTICE CENTER COMPLEX BUILDINGS**, as more particularly described in the Contract (hereinafter called the "Project");

NOW, THEREFORE, the condition of this obligation is such that if the Principal shall promptly make payment to all persons working on or supplying labor or materials under the Contract, and any amendments thereto, with regard to labor or materials furnished and used in the Project, and with regard to labor or materials furnished but not so used, then this obligation shall be void; but otherwise it shall remain in full force and effect.

1. A "Claimant" shall be defined herein as any subcontractor, person, party, partnership, corporation or the entity furnishing labor, services or materials used, or reasonably required for use, in the performance of the Contract, without regard to whether such labor, services or materials were sold, leased or rented, and without regard to whether such Claimant is or is not in privity of contract with the Principal or any subcontractor performing work on the Project, including, but not limited to, the following labor, services, or materials: water, gas, power, light, heat, oil, gasoline, telephone service or rental of equipment directly applicable to the Contract.
2. In the event a Claimant files a lien against the property of the Owner, and the Principal fails or refuses to satisfy or remove it promptly, the Surety shall satisfy or remove the lien promptly upon written notice from the Owner, either by bond or as otherwise provided in the Contract.
3. The Surety hereby waives notice of any and all modifications, omissions, additions, changes, alterations, extensions of time, changes in the payment terms, and any other amendments in or about the Contract and agrees that the obligations undertaken by this Bond shall not be impaired in any manner by reason of any such modifications, omissions, additions, changes, alterations, extensions of time, changes in payment terms, and amendments.
4. The Surety hereby agrees that this Bond shall be deemed amended automatically and immediately, without formal or separate amendments hereto, upon any amendment or modifications to the Contract, so as to bind the Principal and Surety, jointly and severally, to the full payment of any Claimant under the Contract, as amended or modified, provided only that the Surety shall not be liable for more than the penal sum of the Bond, as specified in the first paragraph hereof.
5. This Bond is made for the use and benefit of all persons, firms, and corporations who or which may furnish any materials or perform any labor for or on account of the

construction-type services to be performed or supplied under the Contract, and any amendments thereto, and they and each of them may sue hereon.

6. No action may be maintained on this Bond after one (1) year from the date the last services, labor, or materials were provided under the Contract by the Claimant prosecuting said action.
7. This Bond is intended to comply with O.C.G.A. Section 13-10-1, and shall be interpreted so as to comply with the minimum requirements thereof. However, in the event the express language of this Bond extends protection to the Owner beyond that contemplated by O.C.G.A. Section 13-10-1, or any other statutory law applicable to this Project, then the additional protection shall be enforced in favor of the Owner, whether or not such protection is found in the applicable statutes.

Signatures on the next page

IN WITNESS WHEREOF the undersigned have caused this instrument to be executed and their respective corporate seals to be affixed and attested by their duly authorized representatives this day of _____, _____.

_____(SEAL)
(Principal)

By: _____

Attest:

Secretary

_____(SEAL)
(Surety)

By: _____

Attest:

Secretary

(Address of Surety's Home Office)

(Resident Agent of Surety)

PERFORMANCE BOND

No contract with Fulton County for work to be done shall be valid for any purpose unless the Contractor provides a Performance Bond with good and sufficient surety payable to, in favor of, and for the protection of Fulton County. The Performance Bond shall be in the amount of 100% of the total contract amount, payable by the terms of the Contract, and shall be written on the following form.

Surety companies executing Bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business as a surety in Georgia.

Attestation for the corporation must be by the corporate officer; for a partnership by another partner; for an individual by a notary with the corporate seal.

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS that _____
(hereinafter called the "Principal") and _____
(hereinafter called the "Surety"), are held and firmly bound unto **FULTON COUNTY**, a political subdivision of the State of Georgia (hereinafter called the "Owner"), its successors and assigns, in the penal sum of _____ [100% of Contract amount], lawful money of the United States of America, for the payment of which the Principal and the Surety bind themselves, their administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered, or is about to enter, into a certain written contract with the Owner, dated _____, which is incorporated herein by reference in its entirety (hereinafter called the "Contract"), for construction-type services of a project known as **14ITB041414K-NH BUILDING AUTOMATION SYSTEM – GOVERNMENT AND JUSTICE CENTER COMPLEX BUILDINGS**, as more particularly described in the Contract (hereinafter called the "Project");

NOW, THEREFORE, the conditions of this obligation are as follows, that if the Principal shall fully and completely perform all the undertakings, covenants, terms, conditions, warranties, and guarantees contained in the Contract, including all modifications, amendments, changes, deletions, additions, and alterations thereto that may hereafter be made, then this obligation shall be void; otherwise it shall remain in full force and effect.

Whenever the Principal shall be, and declared by the Owner to be, in default under the Construction-Type Contract, the Surety shall promptly remedy the default as follows:

1. Complete the Contract in accordance with its terms and conditions; or, at the sole option of the Owner,
2. Obtain a bid or bids for completing the Contract in accordance with its terms and conditions, and upon determination by the Surety and the Owner of the lowest responsible bidder, arrange for a contract between such bidder and Owner and make available as the work progresses (even though there should be a default or succession of defaults under the Contract or contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the balance of the contract price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the penal sum set forth in the first paragraph hereof, as may be adjusted, and the Surety shall make available and pay to the Owner the funds required by this Paragraph prior to the payment of the Owner of the balance of the contract price, or any portion thereof. The term "balance of the contract price," as used in this paragraph, shall mean the total amount payable by the Owner to the Contractor under the Contract, and any amendments thereto, less the amount paid by the Owner to the Contractor; or, at the sole option of the Owner,
3. Allow Owner to complete the work and reimburse the Owner for all reasonable costs incurred in completing the work.

In addition to performing as required in the above paragraphs, the Surety shall indemnify and hold harmless the Owner from any and all losses, liability and damages, claims, judgments, liens, costs and fees of every description, including reasonable attorney's fees, litigation costs and expert witness fees, which the Owner may incur, sustain or suffer by reason of the failure or default on the part of the Principal in the performance of any or all of the terms, provisions, and requirements of the Contract, including any and all amendments and modifications thereto, or

incurred by the Owner in making good any such failure of performance on the part of the Principal.

The Surety shall commence performance of its obligations and undertakings under this Bond promptly and without delay, after written notice from the Owner to the Surety.

The Surety hereby waives notice of any and all modifications, omissions, additions, changes, alterations, extensions of time, changes in payment terms, and any other amendments in or about the Contract, and agrees that the obligations undertaken by this Bond shall not be impaired in any manner by reason of any such modifications, omissions, additions, changes, alterations, extensions of time, change in payment terms, and amendments.

The Surety hereby agrees that this Bond shall be deemed amended automatically and immediately, without formal or separate amendments hereto, upon any amendment to the Contract, so as to bind the Principal and the Surety to the full and faithful performance of the Contract as so amended or modified, and so as to increase the penal sum to the adjusted Contract Price of the Contract.

No right of action shall accrue on this Bond to or for the use of any person, entity or corporation other than the Owner and any other obligee named herein, or their executors, administrators, successors or assigns.

This Bond is intended to comply with O.C.G.A. Section 36-91-1 et seq., and shall be interpreted so; as to comply with; the minimum requirements thereof. However, in the event the express language of this Bond extends protection to; the Owner beyond that contemplated by O.C.G.A. Section 36-91-1 et seq. and O.C.G.A. Section 13-10-1, as amended, or any other statutory law applicable to this Project, then the additional protection shall be enforced in favor of the Owner, whether or not such protection is found in the applicable statutes.

Signatures on the next page

IN WITNESS WHEREOF the undersigned have caused this instrument to be executed and their respective corporate seals to be affixed and attested by their duly authorized representatives this _____ day of _____, _____.

_____(SEAL)
(Principal)

By: _____

Attest:

Secretary

_____(SEAL)
(Surety)

By: _____

Attest:

Secretary

(Address of Surety's Home Office)

(Resident Agent of Surety)

SECTION 4

SCOPE OF WORK AND TECHNICAL SPECIFICATIONS

BASIC SCOPE OF WORK AND TECHNICAL REQUIREMENTS

This section describes the scope of work for installation of an automation system for the chiller and AHU integration in Fulton County's Government and Justice Center Complex buildings.

The work includes all of the following and any/or all other tasks required for full integration of the three (3) Chillers and Air Handling Units (AHU) to the existing Building Automation System.

The work will be carried out in three (3) phases as follows:

- Phase 1 – Installing necessary control system and control logic for the chillers in Government Center and integrating the controls to the BAS
- Phase 2 – Integrating the Air Handling Units in the Government Center buildings to the existing BAS.
- Phase 3 – Integrating the Air Handling Units in the Justice Centre Complex to the existing BAS.

The building uses Johnson Control 'Metasys' for its Building Automation requirements.

PHASE 1 - CHILLER CONTROLS AND CONTROLS INTEGRATION

There are three (3) chillers installed in the Government Center. The specifications for them are as follows:

- A. Chiller #1 – 600 Tons capacity, Carrier Model 19XRV6062446LBH64, Centrifugal Hydronic Chiller
- B. Chiller # 2 – 600 Tons capacity, Carrier Model 19XRV6062446LBH64, Centrifugal Hydronic Chiller
- C. Chiller # 3 – 400 Tons capacity, Carrier Model 19XRV4242354KCH64, Centrifugal Hydronic Chiller

The Chilled Water system consists of:

- Three (3) chillers, CH-1 through CH-3. Chiller CH-1 is smaller than CH-2 and CH-3.
- One (1) plate heat exchanger HE-1. It is located between the condenser water system (CWS) and the chilled water system (CHWS) in order that condenser water from the cooling towers may be used to directly cool the chilled water without the chiller(s).
- Two (2) cross-flow cooling towers CT-1 and CT-2. Each has a high speed and low speed motor driving common shaft mount fans.
- A modulating condenser water bypass valve allows the condenser water to bypass the cooling towers in order to maintain flow without going below the temperature set point.

- Six (6) chilled water pumps: two (2) for the plate heat exchanger P-1 & P-2, and one (1) for each chiller P-3, P-4 & P-5.
- Three (3) condenser pumps: one (1) for the plate heat exchanger P-6, one (1) for the filter P-7 and one (1) for each chiller P-7, P-8 & P-9.
- A modulating chilled water bypass valve controls the differential pressure across the supply and return piping.

The chilled water distribution system serves cooling coils in the air handling units and Liebert units located in Building 4 and Building 5. The system has the following modes of operation:

- Shutdown
- Off
- Start-up
- Free cooling (occupied or override)
- Chiller (override)
- Chiller (occupied)

7.1 CONTROL REQUIREMENTS

- 7.1.1 The chiller must be capable of being able to start up and shut down based on a preset value of the outside air temperature.
- 7.1.2 Chillers must stage on and off and sequence the operation based on the cooling load, measured through temperature and quantity of chilled water.
- 7.1.3 Operation of chillers must be optimized in such a way that each of the machines is loaded to the most efficient level and each unit is evenly utilized.
- 7.1.4 The control logic also must provide sequencing of primary and secondary chilled water pumps and cooling towers to provide the most efficient operation of the system.
- 7.1.5 At preset temperatures and below, the chillers must turn off and operation must be automatically transferred to waterside economizer.
- 7.1.6 Controls must be capable of identifying power outage situations and the chillers and associated system must start up and load automatically on restoration of power, subject to operating conditions described in Fulton County's DDC and BAS Specifications included as Attachment – 1 to this package.
- 7.1.7 The control system must allow for scheduling, trending and alarm management. Controls must provide discrimination between alarms and provide remote notification for critical alarms.
- 7.1.8 All existing wirings and installations must be utilized to the extent possible. Any additional requirements must be clearly identified.
- 7.1.9 All existing control valves must be utilized. If any of the valves are defective, the scope of work will automatically cover the repair of such valves. All valves associated with the chillers are newly replaced in 2011.
- 7.1.10 The control system must be capable of measuring and displaying, as a minimum, the following operating parameters.
- Chilled water temperature set point
 - Chilled water and Condenser water supply temperature

- Chilled water and Condenser water return temperature
- BTU delivered by each chiller
- Power input to each chiller
- Head Pressure /temperature
- Chilled water and condenser water pumps status
- Cooling tower fan status

7.1.11 All operating requirements shown above are basic and where these requirements are silent and/or insufficient, please refer to Section 10, Exhibits for Specifications for DDC and BAS.

7.2 DELIVERABLES

The work will be considered complete only after receipt and verification of the following technical requirements:

- 7.2.1 Before commencement of work, the vendor must submit a document detailing the expected sequence of operation. This document will be the basis for verification of scope of work described above.
- 7.2.2 On approval of the Sequence of Operation, vendor must submit a schematic wiring diagram indicating the controls and logic of operation.
- 7.2.3 Work must be commenced only after approval of the schematic wiring and Sequence of Operation by the Project Manager designated by Fulton County.
- 7.2.4 On completion of the project, the work must be tested and approved by designated staff of Fulton County. Tests will be carried out by simulating the conditions in the sequence of operation and verifying the results against results expected in it.
- 7.2.5 A laptop computer, including engineering/programming software to modify Operating System Server BAS programs and graphics shall be included as essential deliverable. The laptop must conform to Fulton County's IT requirements. (See Section 10, Exhibits for Fulton County Government's IT Requirements)
- 7.2.6 The project will be considered complete only when the vendor submits the 'As-Built Drawing' of the project.

Sequence of Operations

Expected Sequence of operation will be on the lines described below.

This sequence must be read in conjunction with the control drawings and points list.

- 7.2.7 The DDC system shall determine when the chillers are to operate based on a building demand program by monitoring the various space temperatures as well as the outdoor air temperature. CH-2 and CH-3 should switch (Lead/Lag) every Monday and Thursday at 0600.
- 7.2.8 Heat exchanger HE-1 shall be initiated as the source of chilled water when the outdoor air is cold enough to permit this. The DDC system shall start the respective chilled water pump and cycle the condenser

- water pumps and the cooling tower fans in stages in order to maintain the chilled water supply temperature set point of 44°F. (Adjustable)
- 7.2.9 Modulate the tower bypass valve in order to maintain condenser water temperature if the outdoor air temperature is low and the cooling tower fans are off.
- 7.2.10 Switchover from HE-1 to the chillers if the condenser water temperature is above 44°F. (Confirm with chiller manufacturer for exact conditions). Chiller CH-1 shall be enabled if the demand for cooling is during the unoccupied mode (e.g. -one Floor on override mode). Chillers CH-2 and CH-3 shall operate during the occupied mode based on a lead/lag arrangement with the changeover duration being no less than 3 day.
- 7.2.11 The DDC system shall enable the selected chiller for operation and the chiller shall start its respective chilled water and condenser water pumps.
- 7.2.12 The water flow switches are wired to the chiller control panel.
- 7.2.13 The DDC system shall monitor the status of the chiller through BACnet Card provided by Carrier Corporation and shall announce an alarm if the chiller is malfunctioning, Switch over to an alternate chiller shall be automatically done via the DDC system.
- 7.2.14 The DDC system shall monitor the status of each purge and announce an alarm on a pump failure. The selected chiller shall immediately be shut down and the alternate chiller selected.
- 7.2.15 The DDC system Shall provide an analog signal (4-20 mA, 2-10 VDC) to the chiller control panel which shall be used to reset the chilled water supply temperature set point based on the building cooling load, as represented by AHU cooling coil control valve positions. As the CHWR temperature rises above 52°F the CHWS temperature set point shall be decreased as required If any space temperature is above the acceptable limit the CHWS set point shall be reduced accordingly, The minimum allowable CHWS temperature shall be 42°F.
- 7.2.16 The second chiller shall be enabled if the CHWR temperature continues to rise above 54°F and the lead chiller has been operating at full capacity for at least 20 minutes. If the building occupied mode is nearly over the DDC system shall determine if the lag chiller may be kept off while still maintaining reasonable space conditions. These limits shall be confirmed with FTS Management.
- 7.2.17 Operate all three chillers simultaneously when the cooling load is very high. This shall only be done if it is earlier than 4:00 P.M. (adjustable) and the CHWS temperature is more than 1.0°F above set point.
- 7.2.18 The DDC system shall modulate the pressure bypass valve between the CHWS line and the CHWR line based on the difference between the two as sensed by a differential pressure transducer in order to maintain water flow through the chillers and HE-1 at all times. The differential pressure setpoint shall be changed to suit the chilled water pump operating at the time.
- 7.2.19 The DDC system shall cycle the cooling tower fans in sequence as required to maintain the condenser water supply temperature set point. This set point is to be initially set at 80°F but shall be confirmed with the chiller manufacturer to ensure maximum chiller efficiency is maintained and no surging takes place.

- 7.2.20 The DDC system shall monitor the cooling tower fans' current draw and shall annunciate an alarm upon a fan failure.
- 7.2.21 DDC system shall provide a 15 second time delay before the low speed is energized when switching from high speed to low speed fan operation.
- 7.2.22 The DDC system shall monitor a sump water level switch in each cooling tower. The DDC system shall open the two way water make up valve located in the Chiller Plant Room when the water level is below normal. The valve shall close when the desired water level is reached.
- 7.2.23 The DDC system shall monitor the current draw of the Cooling Tower Filtration pump and annunciate an alarm upon pump failure.

Phase 2 and Phase 3 – Integration of Air handling Units in Justice Center

There are 32 Air handling units in Government Center and 66 Air handling units in Justice Center. All units are equipped with variable speed drive.

7.3 Control Requirements.

- 7.3.1 Each of the speed drives of AHUs in the Government Center and Justice Center buildings must be wired and programmed for remote access and control.
- 7.3.2 The VFD units are currently wired to the Metasys control box. A trunk line has been established connecting the Metasys control box for each AHU in respective building.
- 7.3.2 Each of the chilled water valves on the AHU must be wired and programmed for remote access and automatic control
- 7.3.4 The scope of work consists of installing all necessary hardware, wiring, conduits and program to map each of the AHUs in to the existing BAS.
- 7.3.5 The AHUs must be accessible on the same front end system on which the chiller and the BAS are accessed.
- 7.3.6 The controls must indicate the set points related to the supply air and chilled water temperature of each AHU.
- 7.3.7 The controls must accomplish indication of the status of AHU fan, value of chilled water valve position, air damper position and the static pressure
- 7.3.8 The controls must accomplish step-less variation of the speed of the AHU based on the static pressure, supply air temperature, status of chilled water valve and return air temperature
- 7.3.9 Controls must allow for scheduling and alarm management of the air handling unit.

7.4 General Requirements of the Control System.

These requirements are applicable for tasks covered by all three phases of the project. The chiller integration and AHU integration must satisfy the following requirements.

- 7.4.1 The vendor must provide integrated Graphical User Interface (GUI) for the existing and new system. The integrated system must be capable of future upgrades and expansion to integrate the Chiller controls for Justice Center Complex.

- 7.4.2 Integration with existing BAS must be accomplished in such way that graphics for the existing installation and that for the new installation must be viewable on a single front-end PC anywhere in the County network
- 7.4.3 The integrated system must be web-enabled, meaning the front end must be capable of being accessed remotely over the County network. This capability must be available for multiple numbers of computers simultaneously.
- 7.4.4 The controller/server/program used must comply with the requirements for connectivity to Fulton County' network. These requirements are shown in Attachment -2, "DoIT_Standards_v5_9_3_11_Update_Version_02_03_12". This is a security requirement of Fulton County's IT Department and will be strictly enforced.
- 7.4.5 Vendors must submit in writing, along with the bid, their response to all questions as applicable to this work, in Part-1 of DoIT_Standards_v5_9_3_11_Update_Version_02_03_12" included in this package as Attachment – 2. Vendors who fail to submit response to this will be considered non-responsive and such bids will be rejected.
- 7.4.6 All components and programs used must conform to open and native BACNet protocols.
- 7.4.7 All software and firmware used for the system must belong to the latest version off- the shelf. If any revision and /or upgrade are made to the software or firmware within two (2) years from the date of acceptance by Fulton County, the same must be installed on Fulton County system free of cost
- 7.4.8 Fulton County's Specifications FC-BAS-Rev 1, "Direct Digital Control System and BAS for Fulton County Buildings" will be used for emphasis and clarification of any requirement mentioned above.
- 7.4.9 Fulton County's Specifications FC-BAS-Rev 1, "Direct Digital Control System and BAS for Fulton County Buildings" will be used for addressing any requirement not covered above.
- 7.4.10 In the event of any dispute arising from the specifications for the BAS software/hardware, Fulton County's standards mentioned above will prevail.
- 7.4.11 Repetition of any requirement stated above in other sections is only intended to stress the importance of that requirement.

SECTION 5

INSURANCE AND RISK MANAGEMENT PROVISIONS

BUILDING AUTOMATION SYSTEM – GOVERNMENT AND JUSTICE CENTER COMPLEX BUILDINGS

It is Fulton County Government's practice to obtain Certificates of Insurance from our Contractors and Vendors. Insurance must be written by a licensed agent in a company licensed to write insurance in the State of Georgia. Respondents shall submit with the bid/proposal evidence of insurability satisfactory to Fulton County Government as to form and content. Either of the following forms of evidence is acceptable:

- A letter from an insurance carrier stating that upon your firm/company being the successful Bidder/Respondent that a Certificate of Insurance shall be issued in compliance with the Insurance and Risk Management Provisions outlined below.
- A Certificate of Insurance complying with the Insurance and Risk Management Provisions outlined below (Request for Bid/Proposal number and Project Description must appear on the Certificate of Insurance).
- A combination of a specific policy written with an umbrella policy covering liabilities in excess of the required limits is acceptable to achieve the applicable insurance coverage levels.

Upon award, the Contractor/Vendor must maintain at their expense, insurance with policy limits equal to or greater than the limits described below. Any and all Insurance Coverage(s) and Bonds required under the terms and conditions of the contract shall be maintained during the entire length of the contract, including any extensions or renewals thereto, and until all work has been completed to the satisfaction of Fulton County Government.

Accordingly the Respondent shall provide a certificate evidencing the following:

**1. WORKERS COMPENSATION/EMPLOYER'S LIABILITY INSURANCE – STATUTORY
(In compliance with the Georgia Workers Compensation Acts and any other State
or Federal Acts or Provisions in which jurisdiction may be granted)**

Employer's Liability Insurance	BY ACCIDENT - EACH ACCIDENT	\$1,000,000
Employer's Liability Insurance	BY DISEASE - POLICY LIMIT	\$1,000,000
Employer's Liability Insurance	BY DISEASE -EACH EMPLOYEE	\$1,000,000

**2. COMMERCIAL GENERAL LIABILITY INSURANCE (Including contractual Liability
Insurance)**

Bodily Injury and Property Damage Liability	Each Occurrence -	\$1,000,000
(Other than Products/Completed Operations)	General Aggregate-	\$2,000,000
Products\Completed Operations	Aggregate Limit -	\$2,000,000
Personal and Advertising Injury	Limits -	\$1,000,000
Damage to Rented Premises	Limits -	\$100,000

3. **BUSINESS AUTOMOBILE LIABILITY INSURANCE Combined Single Limits (Symbol 1)** Any One Accident - \$1,000,000 (Property Damage and Bodily Injury)
4. **UMBRELLA LIABILITY** Each Occurrence - \$2,000,000
(In excess of Auto, General Liability and Employers Liability)

CERTIFICATES

Certificates shall state that the policy or policies shall not expire, be cancelled or altered without at least thirty (30) days prior written notice to Fulton County Government. Policies and Certificates of Insurance are to list Fulton County Government, Its Employees, Servants and Agents as an Additional Insured (except for Workers' Compensation) using ISO form CG 2010 (11/85), its equivalent or on a blanket basis and shall conform to all terms and conditions (including coverage of the indemnification and hold harmless agreement) contained in the Insurance and Risk Management Provisions.

The insurance for the additional insured shall apply as Primary Insurance before any other insurance or self-insurance, including any deductible, non-contributory, and Waiver of Subrogation provided to the Additional Insured.

Additional Insured under the General Liability, Auto Liability, Umbrella Policies (with exception of Workers Compensation), with no Cross Suits exclusion.

If Fulton County Government shall so request, the Respondent, Contractor or Vendor will furnish the County for its inspection and approval such policies of insurance with all endorsements, or confirmed specimens thereof certified by the insurance company to be true and correct copies.

Such certificates and notices shall be sent to:

Fulton County Government – Purchasing Department
130 Peachtree Street, S.W.
Suite 1168
Atlanta, Georgia 30303-3459

Important:

It is understood that **Insurance in no way Limits the Liability of the Contractor/Vendor.**

USE OF PREMISES

Contractor/Vendor shall confine its apparatus, the storage of materials and the operations of its workers to limits/requirements indicated by law, ordinance, permits and any restrictions of Fulton County Government and shall not unreasonably encumber the premises with its materials.

PROTECTION OF PROPERTY

Contractor/Vendor will adequately protect its own work from damage, will protect Fulton County Government's property from damage or loss and will take all necessary precautions during the progress of the work to protect all persons and the property of others from damage or loss.

Contractor/Vendor shall take all necessary precautions for the safety of employees of the work and shall comply with all applicable provisions of the Federal, State and local safety laws and building codes to prevent accidents or injury to persons on, about, or adjacent to the premises where work is being performed.

Contractor/Vendor shall erect and properly maintain at all times as required by the conditions and progress of the work, all necessary safeguards for the protection of its employees, Fulton County Government employees and the public and shall post all applicable signage and other warning devices to protect against potential hazards for the work being performed.

INDEMNIFICATION AND HOLD HARMLESS AGREEMENT

Consultant/Contractor hereby agrees to indemnify and hold harmless Fulton County, its Commissioners and their respective officers, members, employees, and agents (each, hereinafter referred to as an "Indemnified Person") from and against any and all claims, demands, liabilities, losses, costs or expenses, including attorneys' fees due to liability to a third party or parties, for any loss due to bodily injury (including death), personal injury, and property damage arising out of or resulting from the performance of this Agreement or any act or omission on the part of the Consultant/Contractor, its agents, employees or others working at the direction of Consultant/Contractor or on its behalf, or due to any breach of this Agreement by the Consultant/Contractor or due to the application or violation of any pertinent Federal, State or local law, rule or regulation. This indemnification is binding upon to the successors and assigns of Consultant/Contractor. This indemnification does not extend to the sole negligence of the Indemnified Persons nor beyond the scope of this Agreement and the work undertaken thereunder. This indemnification survives the termination of this Agreement and shall also survive the dissolution or to the extent allowed by law, the bankruptcy of Consultant/Contractor.

THE RESPONDENT ACKNOWLEDGES HAVING READ, UNDERSTANDING, AND AGREES TO COMPLY WITH THE ABOVE STATEMENTS, AND IS AUTHORIZED TO SIGN CONTRACTS ON BEHALF OF THE RESPONDING COMPANY.

COMPANY: _____

SIGNATURE: _____

NAME: _____ TITLE: _____

DATE: _____

SECTION 6

PURCHASING FORMS & INSTRUCTIONS

This section contains the procurement forms that are required to be executed and submitted with the bid package. This section does not contain all forms required to be included with the bid package submittal.

To be deemed responsive to this ITB, Bidders must provide the information requested and complete in detail all Purchasing Forms. The appropriate individual(s) authorized to commit the Bidder to the Project must sign the Purchasing Forms. Bidders should reproduce each Purchasing Form, as required, and complete the appropriate portions of the forms provided in this section.

- Form A: Non-Collusion Affidavit of Prime Bidder/Offeror
- Form B: Certificate of Acceptance of Request for Bid/Proposal Requirements
- Form C: Professional License Certifications (***see Section 1; Item 17 for list of required licences***)
 - Form C1 – Georgia Utility License Contractor License
 - Form C2 – Georgia General Contractors License
 - Form C3 – Georgia Professional License
- Form D: Certification Regarding Debarment
- Form E: Disclosure Form and Questionnaire
- Form F: Georgia Security and Immigration Contractor Affidavit and Agreement
- Form G: Georgia Security and Immigration Subcontractor Affidavit

FORM A: NON-COLLUSION AFFIDAVIT OF BIDDER/OFFEROR

STATE OF GEORGIA

COUNTY OF FULTON

I, _____ certify that pursuant to Fulton County Code Section 102-397, this bid or proposal is made without prior understanding, agreement or connection with any corporation, firm or person submitting a bid for the same work, labor or service to be done or the supplies, materials or equipment to be furnished and is in all respects fair and without collusion or fraud. I understand collusive bidding is a violation of state and federal law and can result in fines, prison sentences and civil damages awards. I agree to abide by all conditions of this bid or proposal and certify that I am authorized to sign this bid or proposal for the bidder.

Affiant further states that pursuant to O.C.G.A. Section 36-91-21 (d) and (e), _____ has not, by itself or with others, directly or indirectly, prevented or attempted to prevent competition in such bidding or proposals by any means whatsoever. Affiant further states that (s)he has not prevented or endeavored to prevent anyone from making a bid or offer on the project by any means whatever, nor has Affiant caused or induced another to withdraw a bid or offer for the work.

Affiant further states that the said offer of _____ is bona fide, and that no one has gone to any supplier and attempted to get such person or company to furnish the materials to the bidder only, or if furnished to any other bidder, that the material shall be at a higher price.

(COMPANY NAME)

(PRESIDENT/VICE PRESIDENT)

Sworn to and subscribed before me this _____ day of _____, 2014.

(SECRETARY/ASSISTANT SECRETARY)

(Affix corporate seal here, if a corporation)

Notary Public: _____

County: _____

Commission Expires: _____

NOTE:

IF THE OFFEROR IS A PARTNERSHIP, ALL OF THE PARTNERS AND ANY OFFICER, AGENT, OR OTHER PERSON WHO MAY HAVE REPRESENTED OR ACTED FOR THEM IN BIDDING FOR OR PROCURING THE CONTRACT SHALL ALSO MAKE THIS OATH.

IF THE OFFEROR IS A CORPORATION, ALL OFFICERS, AGENTS, OR OTHER PERSONS WHO MAY HAVE ACTED FOR OR REPRESENTED THE CORPORATION IN BIDDING FOR OR PROCURING THE CONTRACT SHALL MAKE THE OATH.

**FORM B: FULTON COUNTY CERTIFICATE OF ACCEPTANCE OF BID/PROPOSAL
REQUIREMENTS**

This is to certify that on this day, offeror acknowledges that he/she has read this solicitation document, pages # _____ to # _____ inclusive, including any addenda # _____ to # _____ exhibit(s) # _____ to # _____, attachment(s) # _____, and/or appendices # _____ to # _____ in its entirety, and agrees that no pages or parts of the document have been omitted, that he/she understands, accepts and agrees to fully comply with the requirements therein, and that the undersigned is authorized by the offeror to submit the proposal herein and to legally obligate the offeror thereto.

This is also to certify that the offeror has reviewed the form Fulton County contract included in the solicitation documents and agrees to be bound by its terms, or that the offeror certifies that it is submitting any proposed modification to the contract terms with its proposal. The offeror further certifies that the failure to submit proposed modifications with the proposal waives the offeror's right to submit proposed modifications later. The offeror also acknowledges that the indemnification and insurance provisions of Fulton County's contract included in the solicitation documents are non-negotiable and that proposed modifications to said terms may be reason to declare the offeror's proposal as non-responsive.

Company: _____

Signature: _____

Name: _____

Title: _____

Date: _____

(Corporate Seal)

FORM C1: CONTRACTOR'S GEORGIA UTILITY LICENSE CERTIFICATION

Contractor's Name: _____

Utility Contractor's Name: _____

Expiration Date of License: _____

I certify that the above information is true and correct and that the classification noted is applicable to the Bid for this Project.

Signed:

Date:

(ATTACH COPY OF LICENSE)

**FORM C2: CONTRACTOR'S GEORGIA GENERAL CONTRACTOR'S LICENSE
CERTIFICATION**

Contractor's Name: _____

General Contractor's License Number: _____

Expiration Date of License: _____

I certify that the above information is true and correct and that the classification noted is applicable to the Bid for this Project.

Signed: _____

Date: _____

(ATTACH COPY OF LICENSE)

FORM C3: GEORGIA PROFESSIONAL LICENSE CERTIFICATION

NOTE: Please complete this form for the work your firm will perform on this project.

Contractor's Name: _____

Performing work as: Prime Contractor ____ Sub-Contractor ____

Professional License Type: _____

Professional License Number: _____

Expiration Date of License: _____

I certify that the above information is true and correct and that the classification noted is applicable to the Bid for this Project.

Signed:

Date:

(ATTACH COPY OF LICENSE)

FORM D: CERTIFICATION REGARDING DEBARMENT

- (1) The Offeror certifies that neither it or its subcontractors is presently debarred, suspended, proposed for debarment, declared ineligible, or otherwise excluded from doing business with any government agency. Any such exclusion may cause prohibition of your firm from participating in any procurement by the Fulton County Government.
- (2) If the Offeror is unable to certify to any of the statements in this certification, such Offeror or subcontractor shall attach an explanation to this bid or proposal.

INSTRUCTIONS FOR CERTIFICATION

By signing and submitting this certification, the Offeror is providing the certification set out below:

- (1) The certification in this clause is a material representation of fact upon which reliance will be placed. If it is later determined that the prospective vendor knowingly rendered a false certification, the Purchasing Agent may pursue all available remedies, including suspension and/or debarment, for withdrawal of award or termination of a contract.
- (2) The prospective Offeror shall provide immediate written notice to the Purchasing Agent if at anytime the Offeror learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
- (3) Offeror shall be under a continuing duty to immediately inform the Purchasing Agent in writing of any changes, if as a result of such changes, the Offeror certification regarding debarment is affected.

DEBARMENT ORDINANCE

The following Section 102-449 of Fulton County Code of Laws establishes the procedure for the debarment of contractors.

(a) Authority to Suspend.

After reasonable notice to the entity involved and reasonable opportunity for that entity to be heard, the Purchasing Agent, after consultation with user department, the County Manager and the County Attorney shall have the authority to suspend an entity for cause from consideration for award of county contracts. As used in this section, the term entity means any business entity, individual, firm, contractor, subcontractor or business corporation, partnership, limited liability corporation, firm, contractor, subcontractor or business structured; provided, further, that any such entity shall also be subject to suspension under this section if any of its constituents, members, subcontractors at any tier of such entity's and the entity, or any constituent or member, knew or should have known of the commission of the act. The suspension shall be for a period not to exceed three (3) years unless cause is based on a felony conviction for an offense related or associated with fraudulent contracting or misappropriation of funds wherein the suspension shall not exceed seven (7) years.

(b) Causes for Suspension. The causes for suspension include:

- (1) Conviction for commission of a criminal offense as an incident to obtain or attempting to obtain a public or private contract or subcontract, or in performance of such contract or subcontract;

- (2) Conviction of state or federal statutes of embezzlement, theft, forgery, bribery, falsification or destruction of records, receiving stolen property or other offense indicating a lack of business integrity or business honesty which currently, seriously and directly affects responsibility as a county contractor.
- (3) Conviction of state or federal anti-trust statutes arising out of the solicitation and submission of bids and proposals;
- (4) Violation of contract provisions, as set forth below, of a character which is regarded by the Purchasing Agent to be so serious as to justify suspension action:
 - a. Failure to perform in accordance with the specifications within a time limit provided in a county contract;
 - b. A recent record of failure to perform or unsatisfactory performance in accordance with the terms of one or more contracts; provided, that failure to perform or unsatisfactory performance caused by acts beyond the control of the contractor shall not be considered to be a basis for suspension;
 - c. Material representation of the composition of the ownership or workforce or business entity certified to the county as a minority business enterprise; or
 - d. Falsification of any documents.
- (5) For violation of the ethical standards set forth in Fulton County Code Chapter 9, Code of Ethics.
- (6) Knowing misrepresentation to the county, of the use which a majority owned contractor intends to make a minority business enterprise (a business entity at least 51 percent of which is owned and controlled by minority persons, as defined in Fulton County Code Section 102-431) as a subcontractor or a joint venture partner, in performing work under contract with the County.

Failure to fully and truthfully provide the information required, may result in the disqualification of your bid/proposal from consideration or termination of the Contract, once awarded. This document must be completed and included as a part of the bid/proposal package along with other required documents.

[SIGNATURES ON NEXT PAGE]

Under penalty of perjury, I declare that I have examined this certification and all attachments hereto, if applicable, to the best of my knowledge and belief, and all statements contained hereto are true, correct, and complete.

On this _____ day of _____, 20____

(Legal Name of Offeror) (Date)

(Signature of Authorized Representative) (Date)

(Title)

FORM E: DISCLOSURE FORM AND QUESTIONNAIRE

1. Please provide the names and business addresses of each of the Offeror's firm's officers and directors.

For the purposes of this form, the term "Offeror" means an entity that responds to a solicitation for a County contract by either submitting a proposal in response to a Request for Proposal or a Request for Qualification or a Bid in response to an Invitation to Bid. Describe accurately, fully and completely, their respective relationships with said Offeror, including their ownership interests and their anticipated role in the management and operations of said Offeror.

2. Please describe the general development of said Offeror's business during the past five (5) years, or such shorter period of time that said Offeror has been in business.

3. Please state whether any employee, agent or representative of said Offeror who is or will be directly involved in the subject project has or has ever: (i) directly or indirectly had a business relationship with Fulton County; (ii) directly or indirectly received revenues from Fulton County; or (iii) directly or indirectly receives revenues from the result of conducting business on Fulton County property or pursuant to any contract with Fulton County. Please describe in detail any such relationship.

LITIGATION DISCLOSURE:

Failure to fully and truthfully disclose the information required, may result in the disqualification of your bid or proposal from consideration or termination of the Contract, once awarded.

1. Please state whether any of the following events have occurred in the last five (5) years with respect to said Offeror. If any answer is yes, explain fully the following:

(a) whether a petition under the federal bankruptcy laws or state insolvency laws was filed by or against said Offeror, or a receiver fiscal agent or similar officer was appointed by a court for the business or property of said Offeror;

Circle One: YES NO

(b) whether Offeror was subject of any order, judgment, or decree not subsequently reversed, suspended or vacated by any court of competent jurisdiction, permanently enjoining said Offeror from engaging in any type of business practice, or otherwise eliminating any type of business practice; and

Circle One: YES NO

(c) whether said Offeror's business was the subject of any civil or criminal proceeding in which there was a final adjudication adverse to said Offeror, which directly arose from activities conducted by the business unit or corporate division of said Offeror which submitted a bid or proposal for the subject project. If so please explain.

Circle One: YES NO

2. Have you or any member of your firm or team to be assigned to this engagement ever been indicted or convicted of a criminal offense within the last five (5) years?

Circle One: YES NO

3. Have you or any member of your firm or team been terminated (for cause or otherwise) from any work being performed for Fulton County or any other Federal, State or Local Government?

Circle One: YES NO

4. Have you or any member of your firm or team been involved in any claim or litigation adverse to Fulton County or any other federal, state or local government, or private entity during the last three (3) years?

Circle One: YES NO

5. Has any offeror, member of offeror's team, or officer of any of them (with respect to any matter involving the business practices or activities of his or her employer), been notified within the five (5) years preceding the date of this offer that any of them are the target of a criminal investigation, grand jury investigation, or civil enforcement proceeding?

Circle One: YES NO

If you have answered "YES" to any of the above questions, please indicate the name(s) of the person(s), the nature, and the status and/or outcome of the information, indictment, conviction, termination, claim or litigation, the name of the court and the file or reference number of the case, as applicable. Any such information should be provided on a separate page, attached to this form and submitted with your proposal.

NOTE: If any response to any question set forth in this questionnaire has been disclosed in any other document, a response may be made by attaching a copy of such disclosure. (For example, said Offeror's most recent filings with the Securities and Exchange Commission ("SEC") may be provided if they are responsive to certain items within the questionnaire.) However, for purposes of clarity, Offeror should correlate its responses with the exhibits by identifying the exhibit and its relevant text.

Disclosures must specifically address, completely respond and comply with all information requested and fully answer all questions requested by Fulton County. Such disclosure must be submitted at the time of the bid or proposal submission and included as a part of the bid/proposal submitted for this project. Disclosure is required for Offerors, joint venture partners and first-tier subcontractors.

Failure to provide required disclosure, submit officially signed and notarized documents or respond to any and all information requested/required by Fulton County can result in the bid/proposal declared as non-responsive. This document must be completed and included as a part of the bid/proposal package along with other required documents.

[SIGNATURES ON NEXT PAGE]

Under penalty of perjury, I declare that I have examined this questionnaire and all attachments hereto, if applicable, to the best of my knowledge and belief, and all statements contained hereto are true, correct, and complete.

On this _____ day of _____, 2014

(Legal Name of Proponent) (Date)

(Signature of Authorized Representative) (Date)

(Title)

Sworn to and subscribed before me,

This _____ day of _____, 2014

(Notary Public) (Seal)

Commission Expires _____
(Date)

**FORM F: GEORGIA SECURITY AND IMMIGRATION CONTRACTOR AFFIDAVIT
AND AGREEMENT**

Instructions:

Contractors must attest to compliance with the requirements of O.C.G.A 13-10-91 and the Georgia Department of Labor Rule 300-10-01-.02 by executing the Contractor Affidavit provided.

STATE OF GEORGIA

COUNTY OF FULTON

**FORM F: GEORGIA SECURITY AND IMMIGRATION CONTRACTOR AFFIDAVIT
AND AGREEMENT**

By executing this affidavit, the undersigned contractor verifies its compliance with O.C.G.A. 13-10-91, stating affirmatively that the individual, firm or corporation which is engaged in the physical performance of services¹ under a contract with **[insert name of prime contractor]** _____ on behalf of **Fulton County Government** has registered with and is participating in a federal work authorization program*,² in accordance with the applicability provisions and deadlines established in O.C.G.A. 13-10-91.

The undersigned further agrees that, should it employ or contract with any subcontractor(s) in connection with the physical performance of services to this contract with **Fulton County Government**, contractor will secure from such subcontractor(s) similar verification of compliance with O.C.G.A. 13-10-91 on the Subcontractor Affidavit provided in Rule 300-10-01-.08 or a substantially similar form. Contractor further agrees to maintain records of such compliance and provide a copy of each such verification to the **Fulton County Government** at the time the subcontractor(s) is retained to perform such service.

EEV/Basic Pilot Program* User Identification Number

BY: Authorized Officer of Agent
(Insert Contractor Name)

Title of Authorized Officer or Agent of Contractor

Printed Name of Authorized Officer or Agent

Sworn to and subscribed before me this _____ day of _____, 2014.

Notary Public: _____

County: _____

Commission Expires: _____

¹O.C.G.A. § 13-10-90(4), as amended by Senate Bill 160, provides that "physical performance of services" means any performance of labor or services for a public employer (e.g., Fulton County) using a bidding process (e.g., ITB, RFQ, RFP, etc.) or contract wherein the labor or services exceed \$2,499.99, except for those individuals licensed pursuant to title 26 or Title 43 or by the State Bar of Georgia and is in good standing when such contract is for service to be rendered by such individual.

²*[Any of the electronic verification of work authorization programs operated by the United States Department of Homeland Security or any equivalent federal work authorization program operated by the United States Department of Homeland Security to verify information of newly hired employees, pursuant to the Immigration Reform and Control Act of 1986 (IRCA), P.L. 99-603].

**FORM G: GEORGIA SECURITY AND IMMIGRATION SUBCONTRACTOR
AFFIDAVIT**

Instructions:

In the event that your company is awarded the contract for this project, and will be utilizing the services of any subcontractor(s) in connection with the physical performance of services pursuant to this contract, the following affidavit must be completed by such subcontractor(s). Your company must provide a copy of each such affidavit to Fulton County Government, Department of Purchasing & Contract Compliance with the proposal submittal.

All subcontractor affidavit(s) shall become a part of the contract and all subcontractor(s) affidavits shall be maintained by your company and available for inspection by Fulton County Government at any time during the term of the contract. All subcontractor(s) affidavit(s) shall become a part of any contractor/subcontractor agreement(s) entered into by your company.

STATE OF GEORGIA

COUNTY OF FULTON

**FORM G: GEORGIA SECURITY AND IMMIGRATION SUBCONTRACTOR
AFFIDAVIT**

By executing this affidavit, the undersigned subcontractor verifies its compliance with O.C.G.A. 13-10-91, stating affirmatively that the individual, firm or corporation which is engaged in the physical performance of services³ under a contract with **[insert name of prime contractor]** _____ behalf of **Fulton County Government** has registered with and is participating in a federal work authorization program*,⁴ in accordance with the applicability provisions and deadlines established in O.C.G.A. 13-10-91.

EEV/Basic Pilot Program* User Identification Number

BY: Authorized Officer of Agent
(Insert Subcontractor Name)

Title of Authorized Officer or Agent of Subcontractor

Printed Name of Authorized Officer or Agent

Sworn to and subscribed before me this _____ day of _____, 2014.

Notary Public: _____

County: _____

Commission Expires: _____

³O.C.G.A. § 13-10-90(4), as amended by Senate Bill 160, provides that “physical performance of services” means any performance of labor or services for a public employer (e.g., Fulton County) using a bidding process (e.g., ITB, RFQ, RFP, etc.) or contract wherein the labor or services exceed \$2,499.99, except for those individuals licensed pursuant to title 26 or Title 43 or by the State Bar of Georgia and is in good standing when such contract is for service to be rendered by such individual.

⁴*[Any of the electronic verification of work authorization programs operated by the United States Department of Homeland Security or any equivalent federal work authorization program operated by the United States Department of Homeland Security to verify information of newly hired employees, pursuant to the Immigration Reform and Control Act of 1986 (IRCA), P.L. 99-603].

SECTION 7

CONTRACT COMPLIANCE REQUIREMENTS

NON-DISCRIMINATION IN PURCHASING AND CONTRACTING

It is the policy of Fulton County Government that discrimination against businesses by reason of the race, color, gender or national origin of the ownership of any such business is prohibited. Furthermore, it is the policy of the Board of Commissioners (“Board”) that Fulton County and all vendors and contractors doing business with Fulton County shall provide to all businesses the opportunity to participate in contracting and procurement paid, in whole or in part, with monetary appropriations of the Board without regard to the race, color, gender or national origin of the ownership of any such business. Similarly, it is the policy of the Board that the contracting and procurement practices of Fulton County should not implicate Fulton County as either an active or passive participant in the discriminatory practices engaged in by private contractors or vendors seeking to obtain contracts with Fulton County.

Implementation of Equal Employment Opportunity (EEO) Policy

The County effectuates Equal Employment Opportunity thru Policy #800-8, Non-Discrimination in Contracting and Procurement. This policy considers racial and gender workforce availability. The availability of each workgroup is derived from the work force demographics set forth in the 2000 Census EEO file prepared by the United States Department of Commerce for the applicable labor pool normally utilized for the contract.

Monitoring of EEO Policy

Upon award of a contract with Fulton County, the successful bidder/proposer must complete an Equal Employment Opportunity Report (EEOR), describing the racial and gender make-up of the firm’s work force. If the EEOR indicates that the firm’s demographic composition indicates underutilization of employee’s of a particular ethnic group for each job category, the firm will be required to submit an aggressive action plan setting forth steps the firm will take to address the identified underutilization.

DETERMINATION OF GOOD FAITH EFFORTS

During the course of the project, the Prime Contractor shall demonstrate that they have made all efforts reasonably possible to ensure that Minority and Female Business Enterprises (MFBE) have had a full and fair opportunity to compete and win subcontracts on this project. The Prime Contractor is required to include all outreach attempts that would demonstrate a “Good Faith Effort” in the solicitation of sub-consultants/subcontractors.

Written documentation demonstrating the Prime Contractor’s outreach efforts to identify, contact, contract with or utilize Minority or Female owned businesses shall include holding pre-bid conferences, publishing advertisements in general circulation media, trade association publications, minority-focused media, and the County’s bid board, as well as other efforts.

Include a list of publications where the advertisement was placed as well as a copy of the advertisement. Advertisement shall include at a minimum, scope of work, project location,

location(s) of where plans and specifications may be viewed or obtained and trade or scopes of work for which subcontracts are being solicited.

EQUAL BUSINESS OPPORTUNITY PLAN (EBO PLAN)

In addition to the proposal submission requirements, each vendor **must** submit an Equal Business Opportunity Plan (EBO Plan) with their bid/proposal. The EBO Plan is designed to enhance the utilization of a particular racial, gender or ethnic group by a bidder/proposer, contractor, or vendor or by Fulton County. The respondent **must** outline a plan of action to encourage and achieve diversity and equality in the available procurement and contracting opportunities with *this solicitation*.

The EBO Plan **must** identify and include:

1. Potential opportunities within the scope of work of *this solicitation* that will allow for participation of racial, gender or ethnic groups.
2. Efforts that will be made by the bidder/proposer to encourage and solicit minority and female business utilization in *this solicitation*.

Fulton County encourages joint ventures, teaming, partnering and mentor-protégé relationships with minority and female businesses in an effort to achieve contracting and procurement diversity.

Prompt Payment: The prime contractor **must** certify in writing and **must** document all subcontractors, sub-consultants and suppliers have been promptly paid for work and materials, (less any retainage by the prime contractor prior to receipt of any further progress payments). In the event the prime contractor is unable to pay subcontractors, sub-consultants or suppliers until it has received a progress payment from Fulton County, the prime contractor shall pay all subcontractors, sub-consultants or suppliers funds due from said progress payment within forty-eight (48) hours of receipt of payment from Fulton County. In no event shall a subcontractor, sub-consultant or supplier be paid later than fifteen (15) days as provided for by state law.

REQUIRED FORMS AND EBO PLAN

In order to be compliant with the intent and provisions of the Fulton County Non-Discrimination in Purchasing and Contracting Ordinance (99-0960), bidders/proposers **must** submit the following completed documents. Failure to provide this information **shall** result in the proposal being deemed non-responsive.

- Exhibit A – Promise of Non-Discrimination
- Exhibit B – Employment Report
- Exhibit C – Schedule of Intended Subcontractor Utilization
- Exhibit D – Letter of Intent to Perform as a Subcontractor or Provide Materials or Services
- Exhibit E – Declaration Regarding Subcontractors Practices
- Exhibit F – Joint Venture Disclosure Affidavit

- Equal Business Opportunity Plan (EBO Plan). This document is not a form rather a statement created by the bidder/proposer on its company letter head addressing the EBO Plan requirements.
- Exhibit H – First Source Jobs Program Information, Form 1

The following document must be completed as instructed if awarded the project:

- Exhibit G – Prime Contractor’s Subcontractor Utilization Report
- Exhibit H – First Source Jobs Program Agreement, Form 2

All Contract Compliance documents (Exhibits A – H and EBO Plan) are to be placed in a **separate sealed envelope** clearly marked “Contract Compliance”. The EBO Plan must be submitted on company letterhead. These documents are considered part of and should be submitted with the Technical Proposal.

EXHIBIT A – PROMISE OF NON-DISCRIMINATION

"Know all persons by these presents, that I/We (_____),
Name

_____ Title _____ Firm Name
Hereinafter "Company", in consideration of the privilege to bid on or obtain contracts funded, in whole or in part, by Fulton County, hereby consent, covenant and agree as follows:

- 1) No person shall be excluded from participation in, denied the benefit of, or otherwise discriminated against on the basis of race, color, national origin or gender in connection with any bid submitted to Fulton County for the performance of any resulting there from,
- 2) That it is and shall be the policy of this Company to provide equal opportunity to all businesses seeking to contract or otherwise interested in contracting with this Company without regard to the race, color, gender or national origin of the ownership of this business,
- 3) That the promises of non-discrimination as made and set forth herein shall be continuing in nature and shall remain in full force and effect without interruption,
- 4) That the promise of non-discrimination as made and set forth herein shall be made a part of, and incorporated by reference into, any contract or portion thereof which this Company may hereafter obtain,
- 5) That the failure of this Company to satisfactorily discharge any of the promises of non-discrimination as made and set forth herein shall constitute a material breach of contract entitling the Board to declare the contract in default and to exercise any and all applicable rights and remedies, including but not limited to cancellation of the contract, termination of the contract, suspension and debarment from future contracting opportunities, and withholding and/or forfeiture of compensation due and owing on a contract; and
- 6) That the bidder shall provide such information as may be required by the Director of Contract Compliance pursuant to Section 4.4 of the Fulton County Non-Discrimination in Purchasing and Contracting Ordinance.

SIGNATURE: _____

ADDRESS: _____

TELEPHONE NUMBER: _____

The demographic employment make-up for the bidder must be identified and submitted with this bid/proposal. In addition, if subcontractors will be utilized by the bidder/proposer to complete this project, then the demographic employment make-up of the subcontractor(s) must be identified and submitted with this bid.

JOB CATEGORIES	TOTAL EMPLOYED		TOTAL MINORITIES		WHITE (Not Hispanic Origin)		BLACK or AMERICAN (Not of Hispanic Origin)		HISPANIC or LATINO		AMERICAN INDIAN or ALASKAN NATIVE (AIAN)		ASIAN		NATIVE HAWAIIAN or OTHER PACIFIC ISLANDER (NHOP)		TWO or MORE RACES		
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
EXECUTIVE/SENIOR LEVEL OFFICIALS and MANAGERS																			
FIRST/MID LEVEL OFFICIALS and MANAGERS																			
PROFESSIONALS																			
TECHNICIANS																			
SALES WORKERS																			
ADMINISTRATIVE SUPPORT WORKERS																			
CRAFT WORKERS																			
OPERATIVES																			
LABORERS & HELPERS																			
SERVICE WORKERS																			
TOTAL																			

FIRMS'S NAME
 ADDRESS
 TELEPHONE

This completed form is for (Check only one):

Submitted by: _____

Bidder/Proposer

Subcontractor

Date Completed: _____

EXHIBIT C - SCHEDULE OF INTENDED SUBCONTRACTOR UTILIZATION

If the bidder/proposer intends to subcontract any portion of this scope of work/service(s), this form **must be** completed and **submitted with the bid/proposal**. All prime bidders/proposers **must** include Letter(s) of Intent (Exhibit D) in the bid document for all subcontractors who will be utilized under the scope of work/services.

Prime Bidder/Proposer: _____

ITB/RFP Number: _____

Project Name or Description of Work/Service(s): _____

1. My firm, as Prime Bidder/Proposer on this scope of work/service(s) is _____ is not _____ a minority or female owned and controlled business enterprise. (Please indicate below the portion of work, including, percentage of bid/proposal amount that your firm will carry out directly):

2. If the Prime Bidder/Proposer is a Joint Venture, please complete Exhibit F: Joint Venture Disclosure Affidavit and attach a copy of the executed Joint Venture Agreement.

3. Sub-Contractors (including suppliers) to be utilized in the performance of this scope of work/service(s), if awarded, are:

SUBCONTRACTOR NAME: _____

ADDRESS: _____

PHONE: _____

CONTACT PERSON: _____

ETHNIC GROUP*: _____ COUNTY CERTIFIED** _____

WORK TO BE PERFORMED: _____

DOLLAR VALUE OF WORK: \$ _____ PERCENTAGE VALUE: _____ %

***Ethnic Groups: African American (AABE); Asian American (ABE); Hispanic American (HBE); Native American (NABE); White Female American (WFBE); **If yes, please attach copy of recent certification.**

SUBCONTRACTOR NAME: _____
ADDRESS: _____

PHONE: _____

CONTACT PERSON: _____

ETHNIC GROUP*: _____ COUNTY CERTIFIED** _____

WORK TO BE PERFORMED: _____

DOLLAR VALUE OF WORK: \$ _____ PERCENTAGE VALUE: _____ %

SUBCONTRACTOR NAME: _____
ADDRESS: _____

PHONE: _____

CONTACT PERSON: _____

ETHNIC GROUP*: _____ COUNTY CERTIFIED** _____

WORK TO BE PERFORMED: _____

DOLLAR VALUE OF WORK: \$ _____ PERCENTAGE VALUE: _____ %

SUBCONTRACTOR NAME: _____
ADDRESS: _____

PHONE: _____

CONTACT PERSON: _____

ETHNIC GROUP*: _____ COUNTY CERTIFIED** _____

WORK TO BE PERFORMED: _____

DOLLAR VALUE OF WORK: \$ _____ PERCENTAGE VALUE: _____ %

SUBCONTRACTOR NAME: _____
ADDRESS: _____

PHONE: _____

CONTACT PERSON: _____

ETHNIC GROUP*: _____ COUNTY CERTIFIED** _____

WORK TO BE PERFORMED: _____

DOLLAR VALUE OF WORK: \$ _____ PERCENTAGE VALUE: _____ %

***Ethnic Groups: African American (AABE); Asian American (ABE); Hispanic American (HBE); Native American (NABE); White Female American (WFBE); **If yes, please attach copy of recent certification.**

Total Dollar Value of Subcontractor Agreements: (\$)

Total Percentage Value: (%)

CERTIFICATION: The undersigned certifies that he/she has read, understands and agrees to be bound by the Bid/Proposer provisions, including the accompanying Exhibits and other terms and conditions regarding sub-contractor utilization. The undersigned further certifies that he/she is legally authorized by the Bidder/Proposer to make the statement and representation in this Exhibit and that said statements and representations are true and correct to the best of his/her knowledge and belief. The undersigned understands and agrees that if any of the statements and representations are made by the Bidder/Proposer knowing them to be false, or if there is a failure of the intentions, objectives and commitments set forth herein without prior approval of the County, then in any such event the Contractor's acts or failure to act, as the case may be, shall constitute a material breach of the contract, entitling the County to terminate the Contract for default. The right to so terminate shall be in addition to, and in lieu of, any other rights and remedies the County may have for other defaults under the contract.

Signature: _____ **Title:** _____

Firm or Corporate Name: _____

Address: _____

Telephone: () _____

Fax Number: () _____

Email Address: _____

EXHIBIT D

**LETTER OF INTENT TO PERFORM AS A SUBCONTRACTOR
 OR
 PROVIDE MATERIALS OR SERVICES**

This form **must** be completed by **ALL** known subcontractor and submitted with the bid/proposal. The Prime Contractor **must** submit Letters of Intent for **ALL** known subcontractors at time of bid submission.

To: _____
 (Name of Prime Contractor Firm)

From: _____
 (Name of Subcontractor Firm)

ITB/RFP Number: _____

Project Name: _____

The undersigned is prepared to perform the following described work or provide materials or services in connection with the above project (specify in detail particular work items, materials, or services to be performed or provided):

Description of Work	Project Commencement Date	Project Completion Date	Estimated Dollar Amount

 (Prime Bidder)

 (Subcontractor)

Signature _____

Signature _____

Title _____

Title _____

Date _____

Date _____

EXHIBIT E - DECLARATION REGARDING SUBCONTRACTING PRACTICES

If the bidder/proposer **does not intend to subcontract** any portion of the scope of work services(s), this form **must be** completed and submitted with the bid/proposal.

_____ hereby declares that it is my/our intent to
(Bidder)

perform 100% of the work required for _____
(ITB/RFP Number)

(Description of Work)

In making this declaration, the bidder/proposer states the following:

1. That the bidder/proposer does not customarily subcontract elements of this type project, and normally performs and has the capability to perform and will perform **all elements** of the work on this project with his/her own current work forces;
2. If it should become necessary to subcontract some portion of the work at a later date, the bidder/proposer will comply with all requirements of the County's Non-Discrimination Ordinance in providing equal opportunities to all firms to subcontract the work. The determination to subcontract some portion of the work at a later date shall be made in good faith and the County reserves the right to require additional information to substantiate a decision made by the bidder/proposer to subcontract work following the award of the contract. Nothing contained in this provision shall be employed to circumvent the spirit and intent of the County's Non-Discrimination Ordinances;
3. The bidder will provide, upon request, information sufficient for the County to verify Item Number one.

AUTHORIZED COMPANY REPRESENTATIVE

Name: _____ Title: _____ Date: _____

Signature: _____

Firm: _____

Address: _____

Phone Number: _____

Fax Number: _____

Email Address: _____

EXHIBIT F - JOINT VENTURE DISCLOSURE AFFIDAVIT

ITB/RFP No. _____

Project Name _____

This form must be completed and submitted with the bid/proposal if a joint venture approach is to be undertaken.

In order to evaluate the extent of small, minority and female business involvement being proposed by a Bidder/Proposer, certain relevant information must be provided prior to contract award. The information requested below is to clearly identify and explain the extent of small business participation in the proposed joint venture. All items must be properly addressed before the business entity can be evaluated.

1. Firms:

1) **Name of Business:** _____
Street Address: _____
Telephone No.: _____
Nature of Business: _____

2) **Name of Business:** _____
Street Address: _____
Telephone No.: _____
Nature of Business: _____

3) **Name of Business:** _____
Street Address: _____
Telephone No.: _____
Nature of Business: _____

NAME OF JOINT VENTURE (If applicable): _____

ADDRESS: _____

PRINCIPAL OFFICE: _____

OFFICE PHONE: _____

Note: Attach additional sheets as required

1. Describe the capital contributions by each joint venturer and accounting thereof.
2. Describe the financial controls of the joint venture, e.g., will a separate cost center be established? Which venturer will be responsible for keeping the books? How will the expense therefore be reimbursed? What is the authority of each joint venture to commit or obligate the order?
3. Describe any ownership, options for ownership, or loans between the joint ventures. Identify terms thereof.
4. Describe the estimated contract cash flow for each joint venturer.
5. To what extent and by whom will the on-site work be supervised?
6. To what extent and by whom will the administrative office be supervised?
7. Which joint venturer will be responsible for material purchases including the estimated cost thereof? How will the purchase be financed?
8. Which joint venturer will provide equipment? What is the estimated cost thereof? How will the equipment be financed?
9. Describe the experience and business qualifications of each joint venturer.
10. Submit a copy of all joint venture agreements and evidence of authority to do business in the State of Georgia as well as locally, to include all necessary business licenses.
11. Percent of Minority/Female Business Enterprises ownership by each joint venture in terms of profit and loss sharing: _____

12. The authority of each joint venturer to commit or obligate the other: _____

13. Number of personnel to be involved in project, their crafts and positions and whether they are employees of the Minority/Female Business Enterprises enterprise, the majority firm or the joint venture: _____

14. Identification of control and participation in venture; list those individuals who are responsible for day-to-day management and policy decision-maker, including, but not limited to, those with prime responsibility for areas designated below; (use additional sheets if necessary)

<u>Name</u>	<u>Race</u>	<u>Sex</u>	<u>Financial Decisions</u>	<u>Supervision Field Operation</u>
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

In connection with any work that these firms, as a joint venture, might be authorized to perform in connection with above captioned contract, we each do hereby authorize representatives of the Fulton County Department of Contract Compliance, Departments of Purchasing and Contract Compliance, and Finance, under the direction of the County Manger's Office, to examine, from time to time, the books, records and files to the extent that such relate to this County project.

Signature on the next page

WE DO SOLEMNLY DECLARE AND AFFIRM UNDER THE PENALTIES OF PERJURY THAT THE CONTENTS OF THE FOREGOING DOCUMENT ARE TRUE AND CORRECT, AND THAT WE ARE AUTHORIZED, ON BEHALF OF THE ABOVE FIRMS, TO MAKE THIS AFFIDAVIT AND GRANT THE ABOVE PRIVILEGE.

FOR _____
(Company)

Date: _____

(Signature of Affiant)

(Printed Name)

(Company)

Date: _____

(Signature of Affiant)

(Printed Name)

State of _____:

County of _____:

On this ____ day of _____, 2014, before me, appeared _____,
the undersigned officer, personally appeared _____ known
to me to be the person described in the foregoing Affidavit and acknowledges that he
(she) executed the same in the capacity therein stated and for the purpose therein
contained.

EXHIBIT – G PRIME CONTRACTOR/SUB-CONTRACTOR UTILIZATION REPORT

This report **must** be submitted by the **tenth day** of each month, along with a copy of your monthly invoice (schedule of values/payment application) to Contract Compliance. Failure to comply **shall** result in the County commencing proceedings to impose sanctions to the prime contractor, in addition to pursuing any other available legal remedy. Sanctions may include the suspending of any payment or part thereof, termination or cancellation of the contract, and the denial of participation in any future contracts awarded by Fulton County.

REPORTING PERIOD		PROJECT NAME:
FROM:		PROJECT NUMBER:
TO:		PROJECT LOCATION:

PRIME CONTRACTOR		Contract Award Date	Contract Award Amount	Change Order Amount	Contract Period	% Complete to Date
Name:						
Address:						
Telephone #:						

AMOUNT OF REQUISITION THIS PERIOD: \$ _____
 TOTAL AMOUNT REQUISITION TO DATE: \$ _____
 TOTAL AMOUNT REQUISITION TO DATE: \$ _____

SUBCONTRACTOR UTILIZATION (add additional rows as necessary)

Name of Sub-Contractor	Description of Work	Contract Amount	Amount Paid To Date	Amount Requisition This Period	Contract Period Starting Date Ending Date
TOTALS					

Executed By: _____ (Signature) _____ (Printed Name)

Notary: _____ Date: _____ My Commission Expires: _____

Should you have questions regarding any of the documents contained in Section 6, please feel free to contact the Office of Contract Compliance at (404) 763-6300, for further assistance.

EXHIBIT H

FULTON COUNTY FIRST SOURCE JOBS PROGRAM

STATEMENT OF POLICY:

It is the policy of Fulton County Government to provide employment opportunities to the citizens of Fulton County. This policy will apply to all contracts procured through the Department of Purchasing & Contract Compliance valued in excess of \$200,000. The Prime Contractor is expected to utilize the First Source Jobs Program to fill 50% of the entry level jobs which arise as a result of any project funded in whole or in part with County funds with residents of Fulton County.

PURPOSE:

The purpose of this policy is to create a pool of employable persons who are residents of Fulton County to be called upon as a source to fill jobs created as a result of any eligible project funded in whole or in part with County funds in order to provide stable economic opportunities for families throughout the County. The First Source Jobs Program will be implemented by the Department of Purchasing & Contract Compliance and the Office of Workforce Development.

MONITORING POLICY:

Upon execution of a contract with Fulton County Government, the First Source Jobs Agreement (FSJ Form 2) will become a part of the contract between the bidder/proposer and Fulton County Government. The First Source Jobs Program will be monitored during routine site visits by the Office of Contract Compliance along with the Office of Workforce Development.

FORM 1

FULTON COUNTY

First Source Jobs Program Information

Company Name: _____

Project Number: _____

Project Name: _____

The following entry-level positions will become available as a result of the above referenced contract with Fulton County.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Include a job description and all required qualifications for each position listed above.

Identify a company representative and contact phone number who will be responsible for coordinating with the First Source Jobs Program:

Company Representative: _____

Phone Number: _____

Email Address: _____

FORM 2

**FULTON COUNTY
First Source Jobs Program Agreement**

Awarded Contractor's Name: _____

Formal Contract Name: _____

RFP/ITB Number: _____

Contact Person: _____

Contact Phone: _____

The contractor listed above agrees to the following:

1. The contractor shall make a good faith effort to fill 50% of the entry level position(s) created by this project using the Fulton County First Source Jobs Program.
2. The contractor shall provide the applicable details of every entry level job in writing within the required form.
3. The contractor shall be expected to present documentation that confirms employment terms to both the employee and Fulton County.

The Office of Contract Compliance will assist with monitoring the participation of First Source Jobs Program employees during routine site visits and report findings to the Office of Workforce Development for confirmation and follow-up. The Office of Workforce Development shall notify the Director of Human Services and the Purchasing Agent of any determination of non-compliance with the requirements of this policy and recommend a resolution or action to be taken.

Upon a determination by the Purchasing Agent and the Director of Human Services that a contractor has failed to comply with any portion of this policy, the County may impose the following:

1. Ten percent (10%) of all future payments under the involved eligible project shall be entitled to be withheld from a contractor that has violated this policy until the contractor complies with the provisions of this policy.

The undersigned agrees to the terms and conditions set forth in this agreement.

Contractor's Official Title: _____ Date: _____

Contractor's Name: _____

Contractor's Signature: _____

FORM 3

SECTION 8 GENERAL CONDITIONS

00700-1 FAMILIARITY WITH SITE

Execution of this agreement by the Contractor is a representation that the Contractor has visited the site, has become familiar with the local conditions under which the work is to be performed, and has correlated personal observations with the requirements of this agreement.

00700-2 CONTRACT DOCUMENTS

This agreement consists of Owner's invitation for bid, instructions to bidders, bid form, performance bond, payment bond, acknowledgments, the contract, general conditions, special conditions, specifications, plans, drawings, exhibits, addenda, and written change orders.

- A. Notice of Award of Contract:
- B. Execution of Contract Documents

Upon notification of Award of Contract, the Owner shall furnish the Contractor the conformed copies of Contract Documents for execution by the Contractor and the Contractor's surety.

Within ten (10) days after receipt the Contractor shall return all the documents properly executed by the Contractor and the Contractor's surety. Attached to each document shall be an original power-of-attorney for the person executing the bonds for the surety and certificates of insurance for the required insurance coverage.

After receipt of the documents executed by the Contractor and his surety with the power-of-attorney and certificates of insurance, the Owner shall complete the execution of the documents. Distribution of the completed documents will be made upon completion.

Should the Contractor and/or Surety fail to execute the documents within the time specified; the Owner shall have the right to proceed on the Bid Bond accompanying the bid.

If the Owner fails to execute the documents within the time limit specified, the Contractor shall have the right to withdraw the Contractor's bid without penalty.

Drawings and Specifications:

The Drawings, Specifications, Contract Documents, and all supplemental documents, are considered essential parts of the Contract, and requirements occurring in one are as binding as though occurring in all. They are intended to define, describe and provide for all Work necessary to complete the Project in an acceptable manner, ready for use, occupancy, or operation by the Owner.

In case of conflict between the Drawings and Specifications, the Specifications shall govern. Figure dimensions on Drawings shall govern over scale dimensions, and detailed Drawings shall govern over general Drawings.

In cases where products or quantities are omitted from the Specifications, the description and quantities shown on the Drawings shall govern.

Any ambiguities or need for clarification of the Drawings or Specifications shall be immediately reported to the Construction Manager in writing. Any such ambiguity or need for clarification shall be handled by the Construction Manager in writing. No clarification of the Drawings and Specifications hereunder by the Construction Manager shall entitle the Contractor to any additional monies unless a Change Order has been processed as provided by "Changes in the Contract" hereof.

Any work done by the Contractor following a discovery of such differing site condition or ambiguity or need for clarification in the Contract Drawings and Specifications prior to a written report to the Construction Manager shall not entitle the Contractor to additional monies and shall be done at the Contractor's risk.

The Construction Manager will furnish the Contractor five (5) copies of the Contract Drawings and the Specifications, one copy of which the Contractor shall have available at all times on the Project site.

00700-3 DEFINITIONS

The following terms as used in this agreement are defined as follows to the extent the definitions herein differ or conflict with those in the Instructions for Bidders, Section 00100, the definitions herein shall control.

Alternate bids – the amount stated in the bid or proposal to be added to or deducted from the amount of the base bid or base proposal if the corresponding change in project scope or alternate materials or methods of construction is accepted.

Base bid – the amount of money stated in the bid or proposal as the sum for which the bidder or proposer offers to perform the work.

Change Order - an alteration, addition, or deduction from the original scope of work as defined by the contract documents to address changes or unforeseen conditions necessary for project completion. A written order to the Contractor issued by the County pursuant to Fulton County Policy and Procedures 800-6 for changes in the work within the general scope of the contract documents, adjustment of the contract price, extension of the contract time, or reservation of determination of a time extension.

Construction Manager shall mean the individual designated in writing, by the Director of the Facilities and Transportation Services Department as the Construction Manager.

Contractor shall mean the party of the second part to the Contract Agreement or the authorized and legal representative of such party.

Contract Documents include the Contract Agreement, Contractor's Bid (including all documentation accompanying the Bid and any post-Bid documentation required by the County prior to the Notice of Award), Bonds, all Special Conditions, General Conditions, Supplementary Conditions, Specifications, Drawings and addenda, together with written amendments, change orders, field orders and the Construction Manager's written interpretations and clarifications issued in accordance with the General Conditions on or after the date of the Contract Agreement.

Shop drawing submittals reviewed in accordance with the General Conditions, geotechnical investigations and soils report and drawings of physical conditions in or relating to existing surface structures at or contiguous to the site are not Contract Documents.

Contract Price - The sum specified in the Agreement to be paid to the Contractor in consideration of the Work.

Contract Time shall mean the number of consecutive calendar days as provided in the Contract Agreement for completion of the Work, to be computed from the date of Notice to Proceed.

Owner or County shall mean Fulton County Government, party of the first part to the Contract Agreement, or its authorized and legal representatives.

Day - A calendar day of twenty-four hours lasting from midnight of one day to midnight the next day.

Detention Equipment Contractor ("DEC") – Any legally chartered business entity whose primary activity is the supply and/or installation of detention hardware equipment and related systems.

Director - Director of the Facilities and Transportation Services Department of Fulton County, Georgia or the designee thereof.

Engineer of Record – Hellmuth, Obata, Kassabaum, Inc., in conjunction with SafeTech Engineering developed the specifications and drawings referred to herein.

Final Completion shall mean the completion of all work as required in accordance with the terms and conditions of the contract documents.

Liquidated Damages shall mean the amount, stated in the Contract Agreement, which the Contractor agrees to pay to the Owner for each consecutive calendar day beyond the Contract time required to complete the Project or for failing to comply with associated milestones. Liquidated Damages will end upon written notification from the Owner of Final Acceptance of the Project or upon written notification from the Owner of completion of the milestone.

Notice to Proceed - A written communication issued by the County to the Contractor authorizing it to proceed with the work, establishing the date of commencement and completion of the work, and providing other direction to the Contractor.

Products shall mean materials or equipment permanently incorporated into the work.

Program Manager - Not used in this contract. Delete all references.

Project Manual - The Contract Documents.

Provide shall mean to furnish and install.

Substantial Completion - The date certified by the Construction Manager when all or a part of the work, as established pursuant to General Condition 0700-81, is sufficiently completed in accordance with the requirements of the contract documents so that the identified portion of the work can be utilized for the purposes for which it is intended.

Work or Project - All of the services specified, indicated, shown or contemplated by the contract documents, and furnishing by the Contractor of all materials, equipment, labor, methods, processes, construction and manufacturing materials and equipment, tools, plans, supplies, power, water, transportation and other things necessary to complete such services in accordance with the contract documents to insure a functional and complete facility.

00700-4 CODES

All codes, specifications, and standards referenced in the contract documents shall be the latest editions, amendments and revisions of such referenced standards in effect as of the date of the request for proposals for this contract.

00700-5 REVIEW OF CONTRACT DOCUMENTS

Before making its proposal to the County, and continuously after the execution of the agreement, the Contractor shall carefully study and compare the contract documents and shall at once report to the Construction Manager any error, ambiguity, inconsistency or omission that may be discovered, including any requirement which may be contrary to any law, ordinance, rule, or regulation of any public authority bearing on the performance of the work. By submitting its proposal, the Contractor agrees that the contract documents, along with any supplementary written instructions issued by or through the Construction Manager that have become a part of the contract documents, appear accurate, consistent and complete insofar as can be reasonably determined. If the Contractor has timely reported in writing any error, inconsistency, or omission to the Construction Manager, has properly stopped the affected work until instructed to proceed, and has otherwise followed the instructions of the Construction Manager, the Contractor shall not be liable to the County for any damage resulting from any such error, inconsistency, or omission in the contract documents. The Contractor shall not perform any portion of the work without the contract documents, approved plans, specifications, products and data, or samples for such portion of the work. For purposes of this section "timely" is defined as the time period in which the contractor discovers, or should have discovered, the error, inconsistency, or omission, with the exercise of reasonable diligence.

00700-6 STRICT COMPLIANCE

No observation, inspection, test or approval of the County or Construction Manager shall relieve the Contractor from its obligation to perform the work in strict conformity with the contract documents except as provided in General Condition 00700-48.

00700-7 APPLICABLE LAW

All applicable State laws, County ordinances, codes, and rules and regulations of all authorities having jurisdiction over the construction of the project shall apply to this agreement. The Contractor shall comply with the requirements of any Fulton County program concerning non-discrimination in contracting. All work performed within the right of way of the Georgia Department of Transportation and any railroad crossing shall be in accordance with Georgia Department of Transportation regulations, policies and procedures and, where applicable, those of any affected railroad. The Contractor shall comply with all laws, ordinances, codes, rules and regulations bearing on the conduct of the work as specified and the Contractor agrees to indemnify and hold harmless the County, its officers, agents and employees, as well as the Construction Manager and the Program Manager against any claim or liability arising from or based on the violation of any law, ordinance, regulation, order or decree affecting the conduct of the work, whether occasioned by the Contractor, his agents or employees.

00700-8 PERMITS, LICENSES AND BONDS

All permits and licenses necessary for the work shall be secured and paid for by the Contractor. If any permit, license or certificate expires or is revoked, terminated, or

suspended as a result of any action on the part of the Contractor, the Contractor shall not be entitled to additional compensation or time. The Contractor shall obtain and keep in force at all times performance and payment bonds payable to Fulton County in penal amounts equal to 100% of the Contract price.

00700-9 TAXES

- A. The Contractor shall pay all sales, retail, occupational, service, excise, old age benefit and unemployment compensation taxes, consumer, use and other similar taxes, as well as any other taxes or duties on the materials, equipment, and labor for the work provided by the Contractor which are legally enacted by any municipal, county, state or federal authority, department or agency at the time bids are received, whether or not yet effective. The Contractor shall maintain records pertaining to such taxes and levies as well as payment thereof and shall make the same available to the County at all reasonable times for inspection and copying. The Contractor shall apply for any and all tax exemptions which may be applicable and shall timely request from the County such documents and information as may be necessary to obtain such tax exemptions. The County shall have no liability to the Contractor for payment of any tax from which it is exempt.
- B. The Contractor is obligated to comply with all local and State Sales and Use Tax laws. The Contractor shall provide the Owner with documentation to assist the Owner in obtaining sales and/or use tax refunds for eligible machinery and equipment used for the primary purpose of reducing or eliminating air or water pollution as provided for in Chapter 48-8-3 (36) and (37) of the Official Code of Georgia. All taxes shall be paid by the Contractor. All refunds will accrue to the Owner.

Acceptance of the project as complete and final payment will not be made by the Owner until the Contractor has fully complied with this requirement.

00700-10 DELINQUENT CONTRACTORS

The County shall not pay any claim, debt, demand or account whatsoever to any person firm or corporation who is in arrears to the County for taxes. The County shall be entitled to a counterclaim, backcharge, and offset for any such debt in the amount of taxes in arrears, and no assignment or transfer of such debt after the taxes become due shall affect the right of the County to offset any taxes owed against said debt.

00700-11 LIEN WAIVERS

The Contractor shall furnish the County with evidence that all persons who have performed work or furnished materials pursuant to this agreement have been paid in full prior to submitting its demand for final payment pursuant to this agreement. A final affidavit, Exhibit A, must be completed, and submitted to comply with requirements of 00700-11. In the event that such evidence is not furnished, the County may retain sufficient sums necessary to meet all lawful claims of such laborers and materialmen. The County assumes no obligation nor in any way undertakes to pay such lawful claims from any funds due or that may become due to the Contractor.

00700-12 MEASUREMENT

All items of work to be paid for per unit of measurement shall be subject to inspection, measurement, and confirmation by the Construction Manager.

00700-13 ASSIGNMENT

The Contractor shall not assign any portion of this agreement or moneys due there from (include factoring of receivables) without the prior written consent of the County. The Contractor shall retain personal control and shall provide personal attention to the fulfillment of its obligations pursuant to this agreement. Any assignment without the express written consent of the County shall render this contract voidable at the sole option of the County.

00700-14 FOREIGN CONTRACTORS

In the event that the Contractor is a foreign corporation, partnership, or sole proprietorship, the Contractor hereby irrevocably appoints the Secretary of State of Georgia as its agent for service of all legal process for the purpose of this contract only.

00700-15 INDEMNIFICATION

The Contractor hereby assumes the entire responsibility and liability for any and all injury to or death of any and all persons, including the Contractor's agents, servants, and employees, and in addition thereto, for any and all damages to property caused by or resulting from or arising out of any act or omission in connection with this contract or the prosecution of work hereunder, whether caused by the Contractor or the Contractor's agents, Servants, or employees, or by any of the Contractor's subcontractors or suppliers, and the Contractor shall indemnify and hold harmless the County, the Construction Manager, County's Commissioners, officers, employees, successors, assigns and agents, or any of their subcontractors from and against any and all loss and/or expense which they or any of them may suffer or pay as a result of claims or suits due to, because of, or arising out of any and all such injuries, deaths and/or damage, irrespective of County or Construction Manager negligence (except that no party shall be indemnified for their own sole negligence). The Contractor, if requested, shall assume and defend at the Contractor's own expense, any suit, action or other legal proceedings arising there from, and the Contractor hereby agrees to satisfy, pay, and cause to be discharged of record any judgment which may be rendered against the County and the Construction Manager arising there from.

In the event of any such loss, expense, damage, or injury, or if any claim or demand for damages as heretofore set forth is made against the County or the Construction Manager, the County may withhold from any payment due or thereafter to become due to the Contractor under the terms of this Contract, an amount sufficient in its judgment to protect and indemnify it and the Construction Manager, County's Commissioners, officers, employees, successors, assigns and agents from any and all claims, expense, loss, damages, or injury; and the County, in its discretion, may require the Contractor to furnish a surety bond satisfactory to the County providing for such protection and indemnity, which bond shall be furnished by the Contractor within five (5) days after written demand has been made therefore. The expense of said Bond shall be borne by the Contractor.

00700-16 SUPERVISION OF WORK AND COORDINATION WITH OTHERS

The Contractor shall supervise and direct the work using the Contractor's best skill and attention. The Contractor shall be solely responsible for all construction methods and procedures and shall coordinate all portions of the work pursuant to the contract subject

to the overall coordination of the Construction Manager. All work pursuant to this agreement shall be performed in a skillful and workmanlike manner.

The County reserves the right to perform work related to the Project with the County's own forces and to award separate contracts in connection with other portions of the project, other work on the site under these or similar conditions of the contract, or work which has been extracted from the Contractor's work by the County.

When separate contracts are awarded for different portions of the project or other work on the site, the term "separate contractor" in the Contract Documents in each case shall mean the contractor who executes each separate County Agreement.

The Contractor shall cooperate with the County and separate contractors in arranging the introduction and storage of materials and equipment and execution of their work, and shall cooperate in coordinating connection of its work with theirs as required by the Contract Documents.

If any part of the Contractor's Work depends for proper execution or results upon the work of the County or any separate contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly report to the Construction Manager any apparent discrepancies or defects in such other work that render it unsuitable for such proper execution and results **within fourteen (14) days** of discovery of such discrepancy or defect. Failure of the Contractor to so report in writing shall constitute an acceptance of the County's or separate contractor's work as fit and proper to receive the Work, except as to any defects which may subsequently become apparent in such work by others.

Any costs caused by defective or untimely work shall be borne by the party responsible therefore.

Should the Contractor wrongfully cause damage to the work or property of the County or to other work or property on the site, including the work of separate contractors, the Contractor shall promptly remedy such damage at the Contractor's expense.

Should the Contractor be caused damage by any other contractor on the Project, by reason of such other contractor's failure to perform properly his contract with the County, no action shall lie against the County or the Construction Manager inasmuch as the parties to this agreement are the only beneficiaries hereof and there are no third party beneficiaries and neither the County nor the Construction Manager shall have liabilities therefore, but the Contractor may assert his claim for damages solely against such other contractor. The Contractor shall not be excused from performance of the contract by reason of any dispute as to damages with any other contractor or third party.

Where the Work of this Contract shall be performed concurrently in the same areas as other construction work, the Contractor shall coordinate with the Construction Manager and the separate contractors in establishing mutually acceptable schedules and procedures that shall permit all jobs to proceed with minimum interference.

If a dispute arises between the Contractor and separate contractors as to their responsibility for cleaning up, the County may clean up and charge the cost thereof to the Contractor or contractors responsible therefore as the County shall determine to be just.

00700-17 ADMINISTRATION OF CONTRACT

The Program Manager and the Construction Manager shall provide administration services as hereinafter described.

For the administration of this Contract, the Construction Manager shall serve as the County's primary representative during design and construction and until final payment to the Contractor is due. The Construction Manager shall advise and consult with the County and the Program Manager. The primary point of contact for the Contractor shall be the Construction Manager. All correspondence from the Contractor to the County shall be forwarded through the Construction Manager. Likewise, all correspondence and instructions to the Contractor shall be forwarded through the Construction Manager.

The Construction Manager will determine in general that the construction is being performed in accordance with design and engineering requirements, and will endeavor to guard the County against defects and deficiencies in the Work.

The Construction Manager will not be responsible for or have control or charge of construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with the Work, nor will it be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents. The Construction Manager will not be responsible for or have control or charge over the acts or omissions of the Contractor, its engineers, consultants, subcontractors, or any of their agents or employees, or any other persons performing the Work.

Based on the Construction Manager's observations regarding the Contractor's Applications for Payment, the Construction Manager shall determine the amounts owing to the Contractor, in accordance with the payment terms of the Contract, and shall issue Certificates for Payment in such amount to the County.

The Construction Manager shall render interpretations necessary for the proper execution or progress of the Work. Either party to the Contract may make written requests to the Construction Manager for such interpretations.

Claims, disputes and other matters in question between the Contractor and the County relating to the progress of the Work or the interpretation of the Contract Documents shall be referred to the Construction Manager for interpretation.

All interpretations of the Construction Manager shall be consistent with the intent of and reasonably inferable from the Contract Documents and shall be in writing or in graphic form.

Except as otherwise provided in this Contract, the Construction Manager shall issue a decision on any disagreement concerning a question of fact arising under this Contract. The Construction Manager shall reduce the decision to writing and mail or otherwise furnish a copy thereof to the Contractor. The decision of the Construction Manager shall be final and conclusive unless, within thirty (30) days from the date of receipt of such copy, the Contractor files a written appeal with the Director of Public Works and mails or otherwise furnishes the Construction Manager a copy of such appeal. The decision of the Director of Public Works or the Director's duly authorized representative for the determination of such appeals shall be final and conclusive. Such final decision shall not be pleaded in any suit involving a question of fact arising under this Contract, provided such is not fraudulent, capricious, arbitrary, so grossly erroneous as necessarily implying bad faith, or is not supported by substantial evidence. In connection with any appeal proceeding under this Article, the Contractor shall be afforded an opportunity to be heard and to offer evidence in support of Contractor's appeal. Pending any final decision of a dispute hereunder, the Contractor shall proceed diligently with the performance of the Contract as directed by the Construction Manager.

The Construction Manager shall have authority to reject Work which does not conform to the Contract Documents. Whenever, in the Construction Manager's opinion, it is considered necessary or advisable for the implementation of the intent of the Contract Documents, the County shall have authority to require special inspection or testing of the Work whether or not such Work be then fabricated, installed or completed. The Contractor shall pay for such special inspection or testing if the Work so inspected or tested is found not to comply with the requirements of the contract; the County shall pay for special inspection and testing if the Work is found to comply with the contract. Neither the Construction Manager's authority to act under this Subparagraph, nor any decision made by the Construction Manager in good faith either to exercise or not to exercise such authority, shall give rise to any duty or responsibility of the Construction Manager to the Contractor, any subcontractor, any of their agents or employees, or any other person performing any of the Work.

The Contractor shall provide such shop drawings, product data, and samples as may be required by the Construction Manager and/or as required by these Contract Documents.

The Construction Manager shall conduct inspections to determine Substantial Completion and Final Completion, and shall receive and forward to the County for review written warranties and related documents required by the Contract Documents and assembled by the Contractor. The Construction Manager shall approve and issue Certificates for Payment upon compliance with Substantial and Final Completion requirements indicated in General Conditions 00700-81, 00700-82, 00700-84 and 00700-85 of this Agreement.

Except as provided in General Condition 00700-48, the Contractor shall not be relieved from the Contractor's obligations to perform the work in accordance with the contract documents by the activities or duties of the County or any of its officers, employees, or agents, including inspections, tests or approvals, required or performed pursuant to this agreement.

00700-18 RESPONSIBILITY FOR ACTS OF EMPLOYEES

The Contractor shall employ only competent and skilled personnel. The Contractor shall, upon demand from the Construction Manager, immediately remove any superintendent, foreman or workman whom the Construction Manager may consider incompetent or undesirable.

The Contractor shall be responsible to the County for the acts and omissions of the Contractor's employees, subcontractors, and agents as well as any other persons performing work pursuant to this agreement for the Contractor.

00700-19 LABOR, MATERIALS, SUPPLIES, AND EQUIPMENT

Unless otherwise provided in this agreement, the Contractor shall make all arrangements with necessary support agencies and utility companies provide and pay for all labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for the execution and completion of the work.

00700-20 DISCIPLINE ON WORK SITE

The Contractor shall enforce strict discipline and good order among its employees and subcontractors at all times during the performance of the work, to include compliance with the Fulton County Drug Free Work Place Policy. The Contractor shall not employ any subcontractor who is not skilled in the task assigned to it. The Construction

Manager may, by written notice, require the Contractor to remove from the work any subcontractor or employee deemed by the Construction Manager to be incompetent.

00700-21 HOURS OF OPERATION

All work at the construction site shall be performed during regular business hours of the Fulton County government, except upon the Construction Manager's prior written consent to other work hours. It is further understood that the Contractor's construction schedule is based on a normal 40 hours, five day work week, less Fulton County-recognized holidays. Contractors work schedule shall not violate Fulton County Noise Ordinance by working hours inconsistent with the Fulton County Noise Ordinance. The County's current noise ordinance or other applicable ordinance shall govern. If the Contractor desires to work in excess of this limit, the Contractor shall submit a written request to the Construction Manager, a minimum of five days prior to the desired work date. The Contractor shall be responsible for any additional expenses incurred by the Owner as a result of the extended work hours, including resident inspection overtime. The cost associated with resident inspector overtime shall be deducted from the Contractor monthly payment request.

00700-22 FAMILIARITY WITH WORK CONDITIONS

The Contractor shall take all steps necessary to ascertain the nature and location of the work and the general and local conditions which may affect the work or the cost thereof. The Contractor's failure to fully acquaint itself with the conditions which may affect the work, including, but not limited to conditions relating to transportation, handling, storage of materials, availability of utilities, labor, water, roads, weather, topographic and subsurface conditions, other separate contracts to be entered into by the County relating to the project which may affect the work of the Contractor, applicable provisions of law, and the character and availability of equipment and facilities necessary prior to and during the performance of the work shall not relieve the Contractor of its responsibilities pursuant to this agreement and shall not constitute a basis for an equitable adjustment of the contract terms. The County reserves the right to perform with its own forces or to contract with other entities for other portions of the project work, in which case the Contractor's responsibility to assure its familiarity with work conditions hereunder shall include all coordination with such other contractors and the County necessary to insure that there is no interference between contractors as will delay or hinder any contractor in its prosecution of work on the project. The County assumes no responsibility for any understandings or representations concerning conditions of the work made by any of its officers, agents, or employees prior to the execution of this agreement.

00700-23 RIGHT OF ENTRY

The County reserves the right to enter the site of the work by such agent, including the Construction Manager, as it may elect for the purpose of inspecting the work or installing such collateral work as the County may desire. The Contractor shall provide safe facilities for such access so that the County and its agents may perform their functions.

00700-24 NOTICES

Any notice, order, instruction, claim or other written communication required pursuant to this agreement shall be deemed to have been delivered or received as follows:

Upon personal delivery to the Contractor, its authorized representative, or the Construction Manager on behalf of the County. Personal delivery may be accomplished by in-person hand delivery or bona fide overnight express service.

Three days after depositing in the United States mail a certified letter addressed to the Contractor or the Construction Manager for the County. For purposes of mailed notices, the County's mailing address shall be 141 Pryor Street, 6th Floor, Atlanta, Georgia 30303, or as the County shall have otherwise notified the Contractor. The Contractor's mailing address shall be the address stated in its proposal or as it shall have most recently notified the Construction Manager in writing.

00700-25 SAFETY

A. SAFETY, HEALTH AND LOSS PREVENTION

The Contractor shall be responsible for implementing a comprehensive project-specific safety, health and loss prevention program and employee substance abuse program for this project. All Sub-Contractors must either implement their own program or follow the Contractor's safety, health and loss prevention program and employee substance abuse program.

The Contractor's safety, health and loss prevention program and employee substance abuse program must meet or exceed all governmental regulations (OSHA, EPA, DOT, State, local), and any other specific Fulton County requirements

B. COUNTY'S SAFETY, HEALTH, AND LOSS PREVENTION PROCESS GUIDELINES AND REQUIREMENTS

The County and its agents reserve the right, but assume no duty, to establish and enforce safety, health, and loss prevention guidelines and to make the appropriate changes in the guidelines, for the protection of persons and property and to review the efficiency of all protective measures taken by the Contractor. The Contractor shall comply with all safety, health, and loss prevention process guidelines and requirements and changes made by the County or its agent(s). The issuance of any such guidelines or changes by the County or its agent(s) shall not relieve the Contractor of its duties and responsibilities under this Agreement, and the County or its agent(s) shall not thereby assume, nor be deemed to have assumed, any such duties or responsibilities of the Contractor.

C. COMPLIANCE OF WORK, EQUIPMENT, AND PROCEDURES WITH ALL APPLICABLE LAWS and REGULATIONS

All Work, whether performed by the Contractor or its Sub-Contractors of any tier, or anyone directly or indirectly employed by any of them, and all equipment, appliances, machinery, materials, tools and like items incorporated or used in the Work, shall be in compliance with and conform to:

1. All applicable laws, ordinances, rules, regulations and orders of any public, quasi-public or other governmental authority relating to the safety of persons and their protection against injury, specifically including, but in no event limited to, the Federal Occupational Safety and Health Act of 1970, as amended, and all rules and regulations now or hereafter in effect pursuant to said Act.
2. All rules, regulations, and requirements of the County or its agent(s) and its insurance carriers relating there to. In the event of a conflict or differing requirements the more stringent shall govern.

D. PROTECTION OF THE WORK

1. The Contractor shall, throughout the performance of the Work, maintain adequate and continuous protection of all Work and temporary facilities against loss or damage from whatever cause, shall protect the property of the County and third parties from loss or damage from whatever cause arising out of the performance of the Work, and shall comply with the requirements of the County or its agent(s) and its insurance carriers, and with all applicable laws, codes, rules and regulations, (as same may be amended) with respect to the prevention of loss or damage to property as a result of fire or other hazards.
2. The County or its agent(s) may, but shall not be required to, make periodic inspections of the Project work area. In such event, however, the Contractor shall not be relieved of its aforesaid responsibilities and the County or its agent(s) shall not assume, nor shall it be deemed to have assumed, any responsibility otherwise imposed upon the assurance of Contractor by this Agreement.

E. SAFETY EQUIPMENT

1. The Contractor shall provide to each worker on the Project work area the proper safety equipment for the duties being performed by that worker and will not permit any worker on the Project work area who fails or refuses to use the same. The County or its agent shall have the right, but not the obligation, to order the removal of a worker from the Project work site for his/her failure to comply with safe practices or substance abuse policies.

F. EMERGENCIES

1. In any emergency affecting the safety of persons or property, or in the event of a claimed violation of any federal or state safety or health law or regulation, arising out of or in any way connected with the Work or its performance, the Contractor shall act immediately to prevent threatened damage, injury or loss and to remedy said violation. Failing such action the County or its agent(s) may immediately take whatever steps it deems necessary including, but not limited to, suspending the Work as provided in this Agreement.
2. The County or its agent(s) may offset any and all costs or expenses of whatever nature, including attorneys' fees, paid or incurred by the County or its agent(s) (whether such fees are for in-house counsel or counsel retained by the County or its agent), in taking the steps authorized by Section 00700-25(G) (1) above against any sums then or thereafter due to the Contractor. The Contractor shall defend, indemnify and hold the County, its officers, agents, and employees harmless against any and all costs or expenses caused by or arising from the exercise by the County of its authority to act in an emergency as set out herein. If the Contractor shall be entitled to any additional compensation or extension of time change order on account of emergency work not due to the fault or neglect of the Contractor or its Sub-Contractors, such additional compensation or extension of time shall be determined in accordance

with General Condition 00700-52 and General Condition 00700-87 of this Agreement.

G. SUSPENSION OF THE WORK

1. Should, in the judgment of the County or its agent(s), the Contractor or any Sub-Contractor fail to provide a safe and healthy work place, the County or its agent shall have the right, but not the obligation, to suspend work in the unsafe areas until deficiencies are corrected. All costs of any nature (including, without limitation, overtime pay, liquidated damages or other costs arising out of delays) resulting from the suspension, by whomsoever incurred, shall be borne by the Contractor.
2. Should the Contractor or any Sub-Contractor fail to provide a safe and healthy work place after being formally notified in writing by the County or its agents of such non-compliance, the contract may be terminated following the termination provision of the contract.

H. CONTRACTOR'S INDEMNITY OF THE COUNTY FOR CONTRACTOR'S NON-COMPLIANCE WITH SAFETY PROGRAM

1. The Contractor recognizes that it has sole responsibility to assure its Safety Program is implemented and to assure its construction services are safely provided. The Contractor shall indemnify, defend and hold the County and its agents harmless, from and against any and all liability (whether public or private), penalties (contractual or otherwise), losses, damages, costs, attorneys' fees, expenses, causes of action, claims or judgments resulting, either in whole or in part, from any failure of the Contractor, its Sub-Contractors of any tier or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, to comply with the safety requirements of the contract. The Contractor shall not be relieved of its responsibilities under the safety requirements of the Contract should the County or its agent(s) act or fail to act pursuant to its rights hereunder.
2. The Contractor shall not raise as a defense to its obligation to indemnify under this Subparagraph I any failure of those indemnified hereunder to assure Contractor operates safely, it being understood and agreed that no such failure shall relieve the Contractor from its obligation to assure safe operations or from its obligation to so indemnify. The Contractor also hereby waives any rights it may have to seek contribution, either directly or indirectly, from those indemnified hereunder.
3. In any and all claims against those indemnified hereunder by any employee of the Contractor, any Sub-Contractor of any tier or anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligation under this Subparagraph I shall not be limited in any way as to the amount or type of damages, compensation or benefits payable by or for the Contractor or any Sub-Contractor of any tier under any workers' compensation act, disability benefit or other employee benefit acts.

00700-26 BLASTING AND EXCAVATION

The Contractor acknowledges that it is fully aware of the contents and requirements of O.C.G.A. § 25-9-1 through 25-9-12 concerning blasting and excavation near underground gas pipes and facilities and shall fully comply therewith.

00700-27 HIGH VOLTAGE LINES

The Contractor acknowledges that it is fully aware of the contents and requirements O.C.G.A. § 46-3-30 through 46-3-39 concerning safeguards against contact with high voltage lines, and the Contractor shall fully comply with said provisions.

00700-28 SCAFFOLDING AND STAGING

The Contractor acknowledges that it is the person responsible for employing and directing others to perform labor within the meaning of O.C.G.A. § 34-1-1 and agrees to comply with said provisions.

00700-29 CLEAN-UP

The Contractor shall clean up all refuse, rubbish, scrap materials, and debris caused by its operations to the end that the site of the work shall present a neat, orderly and workmanlike appearance at all times.

00700-30 PROTECTION OF WORK

The Contractor shall be responsible for maintenance and protection of the work, which shall include any County-furnished supplies, material, equipment, until final completion of this agreement and acceptance of the work as defined herein. Any portion of the work suffering injury, damage or loss shall be considered defective and shall be corrected or replaced by the Contractor without additional cost to the County.

00700-31 REJECTED WORK

The Contractor shall promptly remove from the project all work rejected by the Construction Manager for failure to comply with the contract documents and the Contractor shall promptly replace and re-execute the work in accordance with the contract documents and without expense to the County. The Contractor shall also bear the expense of making good all work of other Contractors destroyed or damaged by such removal or replacement.

00700-32 DEFECTIVE WORK

If the Contractor defaults or neglects to carry out any portion of the work in accordance with the contract documents, and fails within three days after receipt of written notice from the Construction Manager to commence and continue correction of such default or neglect with diligence and promptness, the County may, after three days following receipt by the Contractor of an additional written notice and without prejudice to any other remedy the County may have, make good such deficiencies and complete all or any portion of any work through such means as the County may select, including the use of a separate Contractor. In such case, an appropriate change order shall be issued deducting from the payments then or thereafter due the Contractor the cost of correcting such deficiencies. In the event the payments then or thereafter due the Contractor are not sufficient to cover such amount, the Contractor shall pay the difference to the County on demand.

The County may, at its option, accept defective or nonconforming work instead of requiring its removal or correction. In such case, a change order shall be issued reducing the price due the contractor to the extent appropriate and equitable. Such contract price adjustment shall be effected whether or not final payment has been made.

00700-33 WARRANTY OF NEW MATERIALS

The Contractor warrants to the County that all materials and equipment furnished under this contract will be new unless otherwise specified, and the Contractor further warrants that all work will be of good quality, free from faults and defects, and in conformance with the contract documents. The warranty set forth in this paragraph shall survive final acceptance of the work.

00700-34 CONTRACTOR'S WARRANTY OF THE WORK

If within one year after the date of issuance of the certificate of final payment pursuant to General Condition 84, or within such longer period of time as may be prescribed by law or by the term of any applicable special warranty required by the contract documents, any of the work is found to be defective or not in accordance with the contract documents, the Contractor shall correct such work promptly after receipt of written notice from the Construction Manager to do so. This obligation shall survive both final payment for the work and termination of the contract.

00700-35 ASSIGNMENT OF MANUFACTURERS' WARRANTIES

Without limiting the responsibility or liability of the Contractor pursuant to this agreement, all warranties given by manufacturers on materials or equipment incorporated in the work are hereby assigned by the Contractor to the County. If requested, the Contractor shall execute formal assignments of said manufacturer's warranties to the County. All such warranties shall be directly enforceable by the County.

00700-36 WARRANTIES IMPLIED BY LAW

The warranties contained in this agreement, as well as those warranties implied by law, shall be deemed cumulative and shall not be deemed alternative or exclusive. No one or more of the warranties contained herein shall be deemed to alter or limit any other.

00700-37 STOP WORK ORDERS

In the event that the Contractor fails to correct defective work as required by the contract documents or fails to carry out the work in accordance with contract documents, the Construction Manager, in writing, may order the Contractor to stop work until the cause for such order has been eliminated. This right of the County to stop work shall not give rise to any duty on the part of the County or the Construction Manager to execute this right for the benefit of the Contractor or for any other person or entity.

00700-38 TERMINATION FOR CAUSE

If the Contractor is adjudged bankrupt, makes a general assignment for the benefit of creditors, suffers the appointment of a receiver on account of its insolvency, fails to supply sufficient properly skilled workers or materials, fails to make prompt payment to subcontractors or materialmen, disregards laws, ordinances, rules, regulations, or orders of any public authority having jurisdiction, fails to diligently prosecute the work, or is otherwise guilty of a material violation of this agreement and fails within seven days after receipt of written notice to commence and continue correction of such default, neglect, or violation with diligence and promptness, the County may, after seven days following receipt by the Contractor of an additional written notice and without prejudice to any

other remedy the County may have, terminate the employment of the Contractor and take possession of the site as well as all materials, equipment, tools, construction equipment and machinery thereon. The County may finish the work by whatever methods the County deems expedient. In such case, the Contractor shall not be entitled to receive any further payment until the work is completed. If the unpaid balance of the contract price exceeds the cost of completing the work, such excess shall be paid to the Contractor. If such costs exceed the unpaid balance, the Contractor shall pay the difference to the County on demand. This obligation for payment shall survive the termination of the contract. Termination of this agreement pursuant to this paragraph may result in disqualification of the Contractor from bidding on future County contracts.

00700-39 TERMINATION FOR CONVENIENCE

The County may, at any time upon written notice to the Contractor, terminate the whole or any portion of the work for the convenience of the County. The effective date of the terminations shall be provided in the written notice. Said termination shall be without prejudice to any right or remedy of the County provided herein. In addition, in the event this agreement has been terminated due to the default of the Contractor, and if it is later determined that the Contractor was not in default pursuant to the provisions of this agreement at the time of termination, then such termination shall be considered a termination for convenience pursuant to this paragraph.

00700-40 TERMINATION FOR CONVENIENCE - PAYMENT

If the Contract is terminated for convenience by the Owner as provided in this article, Contractor will be paid compensation for those services actually performed as approved by the Owner or his representative. Partially completed tasks will be compensated for based on a signed statement of completion prepared by the Project Manager and submitted to the Contractor which shall itemize each task element and briefly state what work has been completed and what work remains to be done. Contractor shall also be paid for reasonable costs for the orderly filing and closing of the project.

00700-41 TERMINATION FOR CONVENIENCE - PAYMENT LIMITATIONS

Except for normal spoilage, and except to the extent that the County shall have otherwise expressly assumed the risk of loss, there shall be excluded from the amounts payable to the Contractor the fair value, as determined by the Construction Manager, of property which is destroyed, lost, stolen or damaged so as to become undeliverable to the County or to another buyer.

00700-42 COST TO CURE

If the County terminates for cause the whole or any part of the work pursuant to this agreement, then the County may procure upon such terms and in such manner as the Construction Manager may deem appropriate, supplies or services similar to those so terminated, and the Contractor shall be liable to the County for any excess costs for such similar supplies or services. The Contractor shall continue the performance of this agreement to the extent not terminated hereunder.

00700-43 ATTORNEY'S FEES

Should the Contractor default pursuant to any of the provisions of this agreement, the Contractor and its surety shall pay to the County such reasonable attorney's fees as the County may expend as a result thereof and all costs, expenses, and filing fees incidental thereto.

00700-44 CONTRACTOR'S RESPONSIBILITIES UPON TERMINATION

After receipt of a notice of termination from the County, and except as otherwise directed by the Construction Manager, the Contractor shall:

1. Stop work under the contract on the date and to the extent specified in the notice of termination;
2. Place no further orders or subcontracts for materials, services or facilities, except as may be necessary for completion of such portion of the work under the agreement as is not terminated;
3. Terminate all orders and subcontracts to the extent that they relate to the performance of work terminated by the notice of termination;
4. Assign to the County in the manner, at the times, and to the extent directed by the Construction Manager, all of the rights, title and interest of the Contractor under the orders and subcontracts so terminated, in which case the County shall have the right, at its discretion, to settle or pay any and all claims arising out of the termination of such orders or subcontracts;
5. Settle all outstanding liabilities and all claims arising out of such termination of orders and subcontracts with the approval or ratification of the Construction Manager, to the extent the Construction Manager may require, which approval or ratification shall be final for all purposes;
6. Transfer title and deliver to the entity or entities designated by the Construction Manager, in the manner, at the times, and to the extent, if any, directed by the Construction Manager, and to the extent specifically produced or specifically acquired by the Contractor for the performance of such portion of the work as has been terminated:
 - a. The fabricated or un-fabricated parts, work, and progress, partially completed supplies, and equipment, materials, parts, tools, dyes, jigs, and other fixtures, completed work, supplies, and other material produced as a part of or acquired in connection with the performance of the work terminated by the notice of termination; and
 - b. The completed or partially completed plans, drawings, information, and other property to the work.
7. Use its best efforts to sell in the manner, at the times, to the extent, and at the prices directed or authorized by the Construction Manager, any property described in Section 6 of this paragraph, provided, however, that the Contractor shall not be required to extend credit to any buyer and further provided that the proceeds of any such transfer or disposition shall be applied in reduction of any payments to be made by the County to the Contractor pursuant to this agreement.
8. Complete performance of such part of the work as shall not have been terminated by the notice of termination; and

9. Take such action as may be necessary, or as the Construction Manager may direct, for the protection and preservation of the property related to the agreement which is in the possession of the Contractor and in which the County has or may acquire an interest.

00700-45 RECORDS

The Contractor shall preserve and make available to the County all of its records, books, documents and other evidence bearing on the costs and expenses of the Contractor and any subcontractor pursuant to this agreement upon three days advance notice to the Contractor.

00700-46 DEDUCTIONS

In arriving at any amount due the Contractor pursuant to the terms of this agreement, there shall be deducted all liquidated damages, advance payments made to the Contractor applicable to the termination portion of the contract, the amount of any claim which the County may have against the Contractor, the amount determined

By the Construction Manager to be necessary to protect the County against loss due to outstanding potential liens or claims, and the agreed price of any materials acquired or sold by the Contractor and not otherwise recovered by or credited to the County.

00700-47 REIMBURSEMENT OF THE COUNTY

In the event of termination the Contractor shall refund to the County any amount paid by the County to the Contractor in excess of the costs properly reimbursable to the Contractor.

00700-48 SUSPENSION, INTERRUPTION, DELAY, DAMAGES

The Contractor shall be entitled to only those damages and that relief from termination by the County as specifically set forth in this agreement. The Construction Manager may issue a written order requiring the Contractor to suspend, delay or interrupt all or any part of the work for such period of time as the County may determine to be appropriate for the convenience of the County. If the performance of the work is interrupted for an unreasonable period of time by an act of the County or any of its officers, agents, employees, contractors, or consultants in the administration of this agreement, an equitable adjustment shall be made for any increase in the Contractor's costs of performance and any increase in the time required for performance of the work necessarily caused by the unreasonable suspension, delay, or interruption. Any equitable adjustment shall be reduced to writing and shall constitute a modification to this agreement. In no event, however, shall an equitable adjustment be made to the extent that performance of this agreement would have been suspended, delayed or interrupted by any other cause, including the fault or negligence of the Contractor. No claim for an equitable adjustment pursuant to this paragraph shall be permitted before the Contractor shall have notified the Construction Manager in writing of the act or failure to act involved, and no claim shall be allowed unless asserted in writing to the Construction Manager within ten days after the termination of such suspension, delay or interruption.

00700-49 COMMENCEMENT AND DURATION OF WORK

The County may issue a Notice to Proceed at any time within 120 days following execution of the contract by the County. The Contractor shall commence work pursuant to this agreement within ten days of mailing or delivery of written notice to proceed. The

Contractor shall diligently prosecute the work to completion within the time specified therefore in the Agreement. The capacity of the Contractor's construction and manufacturing equipment and plan, sequence and method of operation and forces employed, including management and supervisory personnel, shall be such as to insure completion of the work within the time specified in the Agreement. The Contractor and County hereby agree that the contract time for completion of the work is reasonable taking into consideration the average climatic conditions prevailing in the locality of the work and anticipated work schedules of other contractors whose activities are in conjunction with or may affect the work under this contract.

00700-50 TIME OF THE ESSENCE

All time limits stated in this agreement are of the essence of this contract.

00700-51 IMPACT DAMAGES

Except as specifically provided pursuant to a stop work order or change order, the Contractor shall not be entitled to payment or compensation of any kind from the County for direct or indirect or impact damages including, but not limited to, costs of acceleration arising because of delay, disruption, interference or hindrance from any cause whatsoever whether such delay, disruption, interference or hindrance is reasonable or unreasonable, foreseeable or unforeseeable, or avoidable, provided, however, that this provision shall not preclude the recovery of damages by the Contractor for hindrances or delays due solely to fraud or bad faith on the part of the County, its agents, or employees. The Contractor shall be entitled only to extensions in the time required for performance of the work as specifically provided in the contract.

00700-52 DELAY

The Contractor may be entitled to an extension of the contract time, but not an increase in the contract price or damages, for delays arising from unforeseeable causes beyond the control and without the fault or negligence of the Contractor or its subcontractors for labor strikes, acts of God, acts of the public enemy, acts of the state, federal or local government in its sovereign capacity, by acts of another separate contractor, or by an act or neglect of the County.

00700-53 INCLEMENT WEATHER

The Contractor shall not be entitled to an extension of the contract time due to normal inclement weather. Unless the Contractor can substantiate to the satisfaction of the Construction Manager that there was greater than normal inclement weather and that such greater than normal inclement weather actually delayed the work, the Contractor shall not be entitled to an extension of time therefore. The following shall be considered the normal inclement weather days for each month listed, and extensions of time shall be granted in increments of not less than one half day only for inclement weather in excess of the days set out.

January	10 days
February	10 days
March	7 days
April	6 days
May	4 days
June	3 days
July	4 days
August	2 days
September	2 days
October	3 days
November	6 days
December	9 days

00700-54 DELAY - NOTICE AND CLAIM

The Contractor shall not receive an extension of time unless a Notice of Delay is filed with the Construction Manager within ten days of the first instance of such delay, disruption, interference or hindrance and a written Statement of the Claim is filed with the Construction Manager within 20 days of the first such instance. In the event that the Contractor fails to comply with this provision, it waives any claim which it may have for an extension of time pursuant to this agreement.

00700-55 STATEMENT OF CLAIM - CONTENTS

The Statement of Claim referenced in Article 00700-54 shall include specific information concerning the nature of the delay, the date of commencement of the delay, the construction activities affected by the delay, the person or organization responsible for the delay, the anticipated extent of the delay, and any recommended action to avoid or minimize the delay.

00700-56 WORK BEHIND SCHEDULE, REMEDY BY CONTRACTOR

If the work actually in place falls behind the currently updated and approved schedule, and it becomes apparent from the current schedule that work will not be completed within the contract time, the Contractor agrees that it will, as necessary, or as directed by the Construction Manager, take action at no additional cost to the County to improve the progress of the work, including increasing manpower, increasing the number of working hours per shift or shifts per working day, increasing the amount of equipment at the site, and any other measure reasonably required to complete the work in a timely fashion.

00700-57 DILIGENCE

The Contractor's failure to substantially comply with the requirements of the preceding paragraph may be grounds for determination by the County that the Contractor is failing to prosecute the work with such diligence as will insure its completion within the time specified. In such event, the County shall have the right to furnish, from its own forces or by contract, such additional labor and materials as may be required to comply with the schedule after 48 hours written notice to the Contractor, and the Contractor shall be liable for such costs incurred by the County.

00700-58 SET-OFFS

Any monies due to the Contractor pursuant to the preceding paragraph of this agreement may be deducted by the County against monies due from the County to the Contractor.

00700-59 REMEDIES CUMULATIVE

The remedies of the County under Articles 00700-56, 00700-57, and 00700-58 are in addition to and without prejudice to all of the rights and remedies of the County at law, in equity, or contained in this agreement.

00700-60 TITLE TO MATERIALS

No materials or supplies shall be purchased by the Contractor or by any Subcontractor subject to any chattel mortgage or under a conditional sales contract or other agreement by which any interest is retained by the seller. The Contractor hereby warrants that it has good and marketable title to all materials and supplies used by it in the work, and the Contractor further warrants that all materials and supplies shall be free from all liens, claims, or encumbrances at the time of incorporation in the work.

00700-61 INSPECTION OF MATERIALS

All materials and equipment used in the construction of the project shall be subject to adequate inspection and testing in accordance with accepted standards and in accordance with the requirements of the contract documents. Additional tests performed after the rejection of materials or equipment shall be at the Contractor's expense.

00700-62 CONSTRUCTION MANAGER'S PRESENCE DURING TESTING

All tests performed by the Contractor shall be witnessed by the Construction Manager unless the requirement therefore is waived in writing. The Construction Manager may perform additional tests on materials previously tested by the Contractor, and the Contractor shall furnish samples for this purpose as requested.

00700-63 MATERIALS INCORPORATED IN WORK

The Contractor shall furnish all materials and equipment to be incorporated in the work. All such materials or equipment shall be new and of the highest quality available. Manufactured materials and equipment shall be obtained from sources which are currently manufacturing such materials, except as otherwise specifically approved by the Construction Manager.

00700-64 STORAGE OF MATERIALS

Materials and equipment to be incorporated in the work shall be stored in such a manner as to preserve their quality and fitness for the work and to facilitate inspection.

00700-65 PAYROLL REPORTS

The Contractor may be required to furnish payroll reports to the Construction Manager as required by the Owner Controlled Insurance Program.

00700-66 CONTRACTORS' REPRESENTATIVE

Before beginning work, the Contractor shall notify the Construction Manager in writing of one person within its organization who shall have complete authority to supervise the work, receive orders from the Construction Manager, and represent the Contractor in all

matters arising pursuant to this agreement. The Contractor shall not remove its representative without first designating in writing a new representative. The Contractor's representative shall normally be present at or about the site of work while the work is in progress. When neither the Contractor nor its representative is present at the work site, the superintendent, foreman, or other of the Contractor' employee in charge of the work shall be an authorized representative of the Contractor.

00700-67 SPECIALTY SUB-CONTRACTORS

The Contractor may utilize the services of specialty subcontractors on those parts of the project which, under normal contracting practices, are performed by specialty subcontractors. The Contractor shall not award more than seventy-five percent of the work to subcontractors.

00700-68 INSPECTION BY THE CONSTRUCTION MANAGER

All work pursuant to this agreement shall be subject to inspection by the Construction Manager for conformity with contract drawings and specifications. The Contractor shall give the Construction Manager reasonable advance notice of operations requiring special inspection of a portion of the work.

00700-69 WORK COVERED PRIOR TO CONSTRUCTION MANAGER'S INSPECTION

In the event that work is covered or completed without the approval of the Construction Manager, and such approval is required by the specifications or required in advance by the Construction Manager, the Contractor shall bear all costs involved in inspection notwithstanding conformance of such portion of the work to the contract drawings and specifications.

00700-70 SCHEDULING OF THE WORK

The work of this contract shall be planned, scheduled, executed, and reported as required by the Contract Documents.

00700-71 PROGRESS ESTIMATES

The Contractor shall prepare a written report for the Construction Manager's approval, on County forms, of the total value of work performed and materials and equipment obtained to the date of submission. Such a report must accompany each request for a progress payment and is subject to review and approval by the Construction Manager. Approval of a progress estimate or tendering of a progress payment shall not be considered an approval or acceptance of any work performed, and all estimates and payments shall be subject to correction in subsequent estimates. Progress payments shall be made for all completed activities and for materials suitably stored on-site.

00700-72 PROGRESS PAYMENTS

Upon approval of each monthly estimate of work performed and materials furnished, the Construction Manager shall approve payment to the Contractor for the estimated value of such work, materials, and equipment, less the amount of all prior payments and any liquidated damages. The Contractor will be paid 100 percent, less retainage, of the cost of materials received and properly stored on-site but not incorporated into the work. Payments for materials or equipment stored on the site shall be conditioned upon submission by the Contractor of bills of sale to establish the County's title to such materials or equipment. The Contractor's request for payment shall provide sufficient detail as to the work completed or materials purchased for which payment is requested to permit meaningful review by the Construction Manager.

00700-73 TIME OF PAYMENT

The Contractor will be paid within 45 days following receipt of an approved Progress Estimate. The Contractor expressly agrees that the payment provisions within this Contract shall supersede the rates of interest, payment periods, and contract and subcontract terms provided for under the Georgia Prompt Pay Act, O.C.G.A. §13-11-1 et seq., and that the rates of interest, payment periods, and contract and subcontract terms provided for under the Prompt Pay Act shall have no application to this Contract. The County shall not be liable for any late payment interest or penalty.

00700-74 RETAINAGE

The County shall retain from each progress payment ten percent of the estimated value of the work performed until the progress payments, including retainage, total 50 percent of the contract price. If a contract includes two or more projects or assignments that have been separately priced and have separate budgets, and the performances of such projects or assignments are not related to or dependent upon the performance of any other, the 50 per cent limit shall be based upon the price for each individual project or assignment. Thereafter, no further retainage shall be withheld so long as the Contractor is making satisfactory progress to insure completion of the work within the time specified therefore. The County may reinstate the ten percent retainage in the event the Construction Manager determines that the Contractor is not making satisfactory progress to complete the work within the time specified in this agreement or in the event that the Construction Manager provides a specific cause for such withholding. The County may also withhold retainage upon substantial completion of the work as provided in O.C.G.A. §13-10-81(c). Interest may be paid upon the retainage in accordance with Georgia law.

00700-75 PAYMENT OF SUBCONTRACTORS

The Contractor shall promptly pay each subcontractor upon the receipt of payment from the County. Such payment shall be made from the amount paid to the Contractor pursuant to the subcontractor's work. The Contractor shall also maintain the records of the percentage retained from payments to the Contractor pursuant to such subcontractor's work. The Contractor shall procure agreements from each subcontractor requiring each subcontractor to pay their subcontractors, agents and employees in a similar manner. The County reserves the right to inquire of any subcontractor, supplier, materialmen, or subconsultant, the status of any indebtedness of the Contractor. The County further reserves the right to require the Contractor to designate on each instrument of payment exceeding \$400.00 to subcontractors, suppliers, materialmen, and subconsultants that such payment is on account of the work under this Contract.

00700-76 COUNTY'S RESPONSIBILITIES TO SUBCONTRACTORS

Neither the County nor the Construction Manager shall have any obligation to pay any subcontractor except as otherwise required by law.

00700-77 PROGRESS PAYMENTS - ACCEPTANCE OF WORK

Certification of progress payments, as well as the actual payment thereof, shall not constitute the County's acceptance of work performed pursuant to this agreement.

00700-78 PAYMENTS IN TRUST

All sums paid to the Contractor pursuant to this agreement are hereby declared to constitute trust funds in the hands of the contractor to be applied first to the payment of claims of subcontractors, laborers, and suppliers arising out of the work, to claims for utilities furnished and taxes imposed, and to the payment of premiums on surety and other bonds and on insurance for any other application.

00700-79 JOINT PAYMENTS

The County reserves the right to issue any progress payment or final payment by check jointly to the Contractor and any subcontractor or supplier.

00700-80 RIGHT TO WITHHOLD PAYMENT

The Construction Manager may decline to approve payment and may withhold payment in whole or in part to the extent reasonable and necessary to protect the County against loss due to defective work, probable or actual third party claims, the Contractor's failure to pay subcontractors or materialmen, reasonable evidence that the work will not be completed within the contract time or contract price or damage to the County or any other contractor on the project.

00700-81 CERTIFICATE OF SUBSTANTIAL COMPLETION

Upon the Contractor's submission of a request for a certificate of Substantial Completion, the Construction Manager shall inspect the work and determine whether the work is Substantially Complete. If the work is Substantially Complete, the Construction Manager shall issue a certificate of Substantial Completion of the work which shall establish the date of Substantial Completion, shall state the responsibilities of the County and the Contractor for security, maintenance, heat, utilities, damage to the work and insurance, and shall fix the time within which the Contractor shall complete the items submitted by the Contractor as requiring correction or further work. The certificate of substantial completion of the work shall be submitted to the County and the Contractor for their written acceptance of the responsibilities assigned to them pursuant to such certificate.

If in the sole opinion of the Construction Manager, the work is not substantially complete, the Construction Manager shall notify the Contractor of such, in writing, and outline requirements to be met to achieve Substantial Completion.

00700-82 PAYMENT UPON SUBSTANTIAL COMPLETION

Upon Substantial Completion of the work and upon application by the Contractor and approval by the Construction Manager, the County shall make payment reflecting 100% work completed, less value of work remaining as determined by Construction Manager and any authorized retainage.

00700-83 COMMENCEMENT OF WARRANTIES

Warranties required by this agreement shall commence on the date of final completion of the project as determined under Article 00700-84 unless otherwise provided in the certificate of Substantial Completion.

00700-84 FINAL PAYMENT - WAIVER OF CLAIMS, DISPUTE OF FINAL PAYMENT

The acceptance of the Substantial Completion payment shall constitute a waiver of all claims by the Contractor except those previously made in writing and identified by the Contractor as unsettled at the time of application for payment at Substantial Completion and except for the retainage sums due at final acceptance. Following the Construction Manager's issuance of the certificate of Substantial Completion and the Contractor's completion of the work pursuant to this agreement, the Contractor shall forward to the Construction Manager a written notice that the work is ready for final inspection and acceptance. If after inspection the Construction Manager certifies that the work is complete and issues written notification of such to the Contractor, the Contractor shall forward to the Construction Manager a final application for payment. The Construction Manager shall issue a certificate for payment, which shall approve final payment to the Contractor and shall establish the date of final completion.

In the event the Contractor timely disputes the amount of the final payment, the amount due the Contractor shall be deemed by the Contractor and the County to be an unliquidated sum and no interest shall accrue or be payable on the sum finally determined to be due to the Contractor for any period prior to final determination of such sum, whether such determination be by agreement of the Contractor and the County or by final judgment of the proper court in the event of litigation between the County and the Contractor. The Contractor specifically waives and renounces any and all rights it may have under O.C.G.A. §13-6-13 and agrees that in the event suit is brought by the Contractor against the County for any sum claimed by the Contractor under the Contract or for any extra or additional work, no interest shall be awarded on any sum found to be due from the County to the Contractor in the final judgment entered in such suit. All final judgments shall draw interest at the legal rate, as specified by law.

00700-85 DOCUMENTATION OF COMPLETION OF WORK

Neither the final payment nor the remaining retainage shall become due until the Contractor submits the following documents to the Construction Manager:

- a. An affidavit that all payrolls, bills for materials and equipment, and other indebtedness connected with the work have been paid other otherwise satisfied;
- b. The surety's consent to final payment; and
- c. Any other data reasonably required by the County or Construction Manager establishing payment or satisfaction of all such obligations, including releases, waivers of liens, and documents of satisfaction of debts.

In the event that a subcontractor refuses to furnish a release or waiver as required by the County or Construction Manager, the Contractor may furnish a bond satisfactory to the County to indemnify the County against such loss. In the event that any lien or indebtedness remains unsatisfied after all payments are made, the contractor shall refund to the County all moneys that the County may become compelled to pay in discharging such lien or other indebtedness, including all costs and reasonable attorney's fees.

00700-86 GOVERNING LAW

Each and every provision of this agreement shall be construed in accordance with and governed by Georgia law. The parties acknowledge that this contract is executed in Fulton County, Georgia and that the contract is to be performed in Fulton County, Georgia. Each party hereby consents to the Fulton Superior Court's sole jurisdiction over any dispute which arises as a result of the execution or performance of this agreement, and each party hereby waives any and all objections to venue in the Fulton Superior Court.

00700-87 CHANGES IN THE WORK

A. CHANGE ORDERS

1. A Change Order is a written order to the Contractor signed to show the approval and the authorization of the County, issued after execution of the Contract, authorizing a change in the Work and/or an adjustment in the Contract Sum or the Contract Time. Change Orders shall be written using forms designated by the County with Contractor providing supporting documentation as required by the Construction Manager. The Contract Sum and the Contract Time may be changed only by approved Change Order pursuant to Fulton County Procedure 800-6. The amount payable by the Change Order is payment in full for all direct and indirect costs incurred and related to the work under said Change Order, including but not limited to delays, imports, acceleration, disruption and extended overhead. A Change Order signed by the Contractor indicates the Contractor's agreement therewith, including the adjustment in either or both of the Contract Sum or the Contract Time.
2. The County, without invalidating the Contract, may order changes in the Work within the general scope of the Contract as defined herein. The time allowed for performance of the work and the contract price to be paid to the Contractor may be adjusted accordingly.
3. The cost or credit to the County resulting from a change in the Work shall be determined in one or more of the following ways:
 - a. By mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
 - b. By unit prices stated in the Contract Documents or subsequently agreed upon;
 - c. By cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
 - d. By the method provided in Subparagraph A4 below.
4. If none of the methods set forth in Subparagraphs 3a, 3b, or 3c above is agreed upon, the Contractor, provided a written order signed by the Construction Manager is received, shall promptly proceed with the Work involved. The cost of such Work shall then be determined by the Construction Manager on basis of the reasonable expenditures and savings of those performing the Work attributable to the change. The cost of the change shall include only the items listed in Subparagraph 5a

below, and in the case of either a decrease or an increase in the Contract Sum, an allowance for overhead and profit in accordance with the schedules set forth in Subparagraphs 5b and 6 below shall be applied to the cost or credit.

- a. In such case, and also under Subparagraph 3a above, the Contractor shall keep and present, in such form as the Construction Manager may prescribe, an itemized accounting of all actual costs expended, together with appropriate supporting data for inclusion in a Change Order.
 - b. All hourly rate charges shall be submitted to the Construction Manager for prior review and approval. All hourly rate charges shall be properly supported as required by the Construction Manager with certified payrolls, or their acceptable equivalent. When authorized to proceed for a given change and actual expenditures have been made prior to execution of a Change Order for the entire change, such actual expenditures may be summarized monthly, and if approved, incorporated into a Change Order. When both additions and credits covering related Work or substitutions are involved in any one change, the allowance for overhead and profit shall be figured on the basis of the net increase or decrease, if any, with respect to that change.
5. In Subparagraphs 3 and 4 above, the items included in "Cost and Overhead" shall be based on the following schedule:
- a. Unless otherwise provided in the Contract Documents, "Cost" shall be limited to the following: cost of materials incorporated into the Work, including sales tax and cost of delivery; cost of direct labor (labor cost may include a pro rata share of foreman's account of the change) including social security, old age and unemployment insurance, and fringe benefits required by agreement or custom; workers' or workmen's compensation insurance; rental value of equipment and machinery; costs for preparing Shop Drawings.
 - b. Unless otherwise provided in the Contract Documents, "Overhead" shall include the following: bond and insurance premiums including increase and decreases from change in the Work, supervision, superintendence, construction parking, wages of timekeepers, watchmen and clerks, small tools, consumable supplies, expendables, incidentals, general office expense, the cost of additional reproduction for the Contractor's subcontractors beyond that agreed upon in the Contract Documents, construction parking, any additional costs of craft supervision by the Contractor's or subcontractors' superintendents, and overhead charges which would be customary and expended regardless of the change in the Work due to other overlapping activities which are included as part of the original Contract, and all other expenses not included in "Cost" above.
 - c. In the event that a change is issued by the County which would require the expenditure of substantial amounts of special

supervision (beyond the foreman level) by the Contractor, the Contractor may, at the sole direction of the Construction Manager, be allowed to incorporate these charges into the agreement cost for the change.

6. In Subparagraphs 3 and 4 above, the allowance for overhead and profit combined, included in the total cost or credit to the County, shall be based on the following schedule:
 - a. For the Contractor, for any work performed by the Contractor's own forces, ten (10) percent of the cost.
 - b. For the Contractor, for any work performed by a Contractor's subcontractor, five (5) percent of the amount due the subcontractor.
 - c. For each subcontractor or sub-subcontractor involved, for any work performed by that subcontractor's or sub-subcontractor's own forces, ten (10) percent of the cost.
 - d. For each subcontractor, for work performed by a sub-subcontractor, five (5) percent of the amount due to the sub-subcontractor.
 - e. Cost to which overhead and profit is to be applied shall be determined in accordance with Subparagraph 5 above unless modified otherwise.
7. In order to facilitate checking of quotations for extras or credits, all proposals or bids, except those so minor that their propriety can be seen by inspection, shall be accompanied by a complete itemization of costs, including labor cost, materials and subcontracts. Labor and materials shall be itemized in the manner defined in Subparagraph 4 above. Where major cost items are subcontracts, they shall be itemized also. In no case shall a change be approved without such itemization.
8. No payment shall be made for any changes to the contract that are not included in a fully executed Change Order.

B. CONCEALED, UNKNOWN AND DIFFERING CONDITIONS

1. Should concealed conditions be encountered in the performance of the Work below the surface of the ground, or should concealed or unknown conditions in an existing structure be at variance with the conditions indicated by the Contract Documents, or should unknown physical conditions below the surface of the ground or concealed or unknown conditions in an existing structure of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in this Contract, be encountered, the Contract Sum and Contract Time shall be equitably adjusted by Change Order upon request by either party made within twenty (20) days after the first observance of the conditions. No such request for equitable adjustment shall be valid unless the Contractor complies with this (20) days notice and Subparagraph C.1. below.

2. The Contractor shall promptly, and before such conditions are disturbed, notify the Construction Manager in writing of any claim of concealed, unknown or differing conditions pursuant to this paragraph. The Construction Manager shall authorize the Engineer to investigate the conditions, and if it is found that such conditions do materially so differ and cause an increase or decrease in the Contractor's cost of, or the time required for, performance of any part of the Work under this Contract, whether or not changed as a result of such conditions, an equitable adjustment shall be recommended to the Construction Manager.
3. No claim of the Contractor under this clause shall be allowed unless the Contractor has given the notice required in (a) above, prior to disturbing the condition.
4. No claim by the Contractor for an equitable adjustment shall be allowed if asserted after final payment under this Contract.
5. Any materially differing site condition as between what is shown on the Drawings and Specifications and actually found on site shall be immediately reported to the Construction Manager in writing prior to the commencement of Work at the site. Failure of the Contractor to notify the Construction Manager in writing of the differing site condition prior to performance of Work at the site shall constitute a waiver of any claim for additional monies. Any Change Order necessitated by the differing site condition shall be processed as provided under "Changes in the Contract".

C. REQUESTS FOR ADDITIONAL COST

1. If the Contractor wishes to request an increase in the Contract Sum, the Contractor shall give the Construction Manager written notice thereof within twenty (20) days after the occurrence of the event, or identification of the conditions, giving rise to such request. This notice shall be give by the Contractor before proceeding to execute the Work, except in an emergency endangering life or property in which case the Contractor shall proceed in accordance with Article 00700-25 and Subparagraph A.4 above. No such request shall be valid unless so made within the twenty (20) days specified above. If the County and the Contractor cannot agree on the amount of the adjustment in the Contract Sum, it shall be determined by the Construction Manager. Any change in the Contract Sum resulting from such claim shall be documented by Change Order.
2. If the Contractor claims that addition cost is involved because of, but not limited to (1) any written interpretation pursuant to General Condition 00700-17 of this Agreement, (2) any order by the County to stop the Work pursuant to Articles 00700-25 and 00700-37 of this Agreement where the Contractor was not at fault, or any such order by the Construction Manager as the County's agent, or (3) any written order for a minor change in the Work issued pursuant to Paragraph D below, the Contractor shall submit a request for an increase in the Contract Sum as provided in Subparagraph C.1 above. No such claim shall be valid unless the Contractor complies with Subparagraph C.1 above and approved by the County pursuant to Change Order Policy 800-6.

D. MINOR CHANGES IN THE WORK

The Construction Manager may order minor changes in the Work not involving an adjustment in the Contract Price, extension of the time allowed for performance of the work and not inconsistent with the intent of the Contract Documents. Such changes shall be effected by a written Change Directive issued by the Construction Manager, and shall be binding on the County and the Contractor. The Contractor shall carry out such written orders promptly.

E. BONDS

If any change order results in an increase in the contract price, the contractor shall increase the penal sum of the performance and payment bonds to equal the increased price.

00700-88 DISAGREEMENT WITH ORDERS FOR CHANGE

Contractor's written acceptance of a Change Order or other order for changes shall constitute his final and binding agreement to the provisions thereof and a waiver of all claims in connection therewith, whether direct or consequential in nature. Should Contractor disagree with any order for changes, he may submit a notice of potential claim to the Construction Manager, at such time as the order is set forth in the form of a Change Order. Disagreement with the provisions of an order for changes shall not relieve Contractor of his obligation under Article 00700-87 of this Agreement.

00700-89 NO WAIVER OF REMEDIES

Exercise by the County of any remedy is not exclusive of any other remedy available to County and shall not constitute a waiver of any such other remedies. Failure of the County to exercise any remedy, including breach of contract remedies, shall not preclude the County from exercising such remedies in similar circumstances in the future.

00700-90 LAND AND RIGHTS-OF-WAY

The owner will provide, as indicated in the Contract Documents and prior to Notice to Proceed, the lands upon which the work is to be done, right-of-way for access thereto, and such other lands which are designated for the use of the Contractor. The Contractor shall confine the Contractor's work and all associated activities to the easements and other areas designated for the Contractor's use. The Contractor shall comply with any limits on construction methods and practices which may be required by easement agreements. If, due to some unforeseen reason, the necessary easements are not obtained, the Contractor shall receive an equitable extension of contract time dependent upon the effect on the critical path of the project schedule or the County may terminate the Contract for its convenience.

00700-91 COORDINATION WITH STATE DEPARTMENT OF TRANSPORTATION

No clearing or grading shall be completed by Contractor within the State Department of Transportation (DOT) area under construction. The Contractor must coordinate his construction scheduling with DOT.

If the Contractor begins work before DOT's completion date, he must obtain the approval of DOT before starting work in the area. The state DOT has the right to stop the Contractor's work the DOT area.

The Contractor shall receive no additional compensation or damages resulting from delay or work stoppage from DOT actions or scheduling.

Contractor shall obtain DOT drawings of the DOT, project area for verification of road geometry, storm drains, etc. from Georgia Department of Transportation or Fulton County. The Contractor is responsible for obtaining any pertinent DOT revisions.

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EXHIBIT A
FINAL AFFIDAVIT

TO FULTON COUNTY, GEORGIA

I, _____, hereby certify that all suppliers of materials, equipment and service, subcontractors, mechanic, and laborers employed by _____ or any of his subcontractors in connection with the design and/or construction of _____ at Fulton County have been paid and satisfied in full as of _____, 200____, and that there are no outstanding obligations or claims of any kind for the payment of which Fulton County on the above-named project might be liable, or subject to, in any lawful proceeding at law or in equity.

Signature

Title

Personally appeared before me this _____ day of _____, 20____. _____, who under Oath deposes and says that he is _____ of the firm of _____, that he has read the above statement and that to the best of his knowledge and belief same is an exact true statement.

Notary Public

My Commission expires

1. Experience and Qualifications

- 1.1 The vendor must be manufacturer or authorized value added reseller of the BAS System approved in the General Services Design Standards. Currently these are Siemens, Johnson Controls and Automated Logic
- 1.2 The vendor must have been in the business of installation, testing and commissioning of Building Automation System for a period of five years or more.
- 1.3 If the vendor is an authorized reseller of the product please provide three references in support of vendor's experience in the work.

References must indicate:

- (1) Name of the Project and year of installation
- (2) Name of organization who received the services
- (3) Name and current phone number of the person responsible for the project

Vendor understand that Facilities and Transportation Services Department will use the information provided above for making inquiries and collecting information about vendor's performance and product. Vendor also understands that such information will be used for evaluating the bid

2. Inventory

The bidder must certify below that he has a full inventory of parts and services required within a fifty (50) mile radius of the Fulton County Government Center, 141 Pryor Street, Atlanta, Georgia 30303. The bidder understands that having the materials/ supplies/ services on an "if needed, as needed, and when needed basic" will be used in selecting the successful bidder. Fulton County reserves the right to reject any bid not meeting this requirement.

Components and Services are available at:

(address) _____

Contact Name and Phone number for Services will be:

Name: _____

Phone Number: _____

3. Warranty requirements

The successful bidder will be responsible for providing warranty on all parts and labor for minimum period of twelve (12) months from the completion of the service. In the case of parts, if the manufacturer's standard warranty period is greater than 12 months, the manufacturer's standard warranty period will prevail. Any repair or replacement required within the warranty period will be at the expense of the successful bidder. Parts under warranty will be replaced at no additional cost to Fulton County.

3.1 Warranty services will be as required by the Zonal Manager. However, the successful bidder must be capable of responding to emergency repair calls within two (2) Hours. The successful bidder is required to maintain a point of contact for service twenty-four (24) hours per day, seven (7) days per week including holidays.

[A] Emergency Requests: Services and/or parts must be provided within two (2) hours to mitigate the emergency situation.

[B] Urgent Requests: Services and/or parts must be provided within twenty-four (24) hours.

[C] Routine Requests: Services and/or parts must be provided within Three (3) days.

3.2 Successful vendor must be prepared to accept a service contract for a period not exceeding 3 years after expiry of the warranty period.

4. Site Visit

We strongly recommend a site visit before submitting your bid to collect as much information about the existing system, accessibility limitations to the building and capabilities required in this ITB. Fulton County will not entertain any claim based on lack of information on a later date, if such information could have been collected through a site visit.

5. Payments

Payment against this project will be subject to completion of each phase of the work. Vendor is eligible to submit invoice/s at satisfactory completion of each phase. However an amount not more than 30% but not less than 10% of each invoice will be retained by Fulton County until satisfactory completion and acceptance of all phases.

5.1 Authority for determination of percentage retentions is vested with the Area Manager, Central and Greater Fulton Maintenance.

6. Required Submittals

The following information must be submitted as a part of this ITB:

- Price schedule with complete information required in Section 7;
- Statement in support of past qualification and experience in similar work, as required in Paragraph 1, Section 8;
- References showing complete information about previous projects, contact names and phone numbers, as required in Paragraph 1, Section 8; and
- Insurance Certificate.

SECTION 9

SPECIAL CONDITIONS

9.1 General Information

The following is the General information related to installation of the Building Automation System for integration of Chillers and Air Handling Units in the Government Center and integration of Air Handling Units in the Justice Center Complex.

- 9.1.1 There are three (3) chillers in the Government Center.
- 9.1.2 There are 32 AHUs in the Government Center and 66 AHUs in the Justice Center.
- 9.1.3 Variable Speed Drives are in place for all of the AHUs except one or two in the Government Center.
- 9.1.4 Fulton County is considering installation of the BAS in order to provide efficient state of the art controls for the HVAC system. This is sought to be achieved by adding control components and software that satisfy the performance requirements mentioned in Section 7, Scope of work and Technical Specifications and Attachment -1, FC-BAS-Rev 1.
- 9.1.5 All existing hardware, cables and other components shall be re-used if they comply with the requirements of the new system. The components that will be replaced must be identified in the bid. However any re-use shall not adversely affect the warranty of the work or new system.

9.2 Performance and Design Requirements

- 9.2.1 The new system must be DDC and must be capable of providing easy monitoring, adjustment, start/stop and calibration of the chillers and air-handling units.
- 9.2.2 The BAS must be user friendly and should not require knowledge of any programming language for operation by ordinary user.
- 9.2.3 The software must be the latest software version available in the market, and the version must not be due for an upgrade in the next two years.
- 9.2.4 If there is a software upgrade expected in 24 months from the installation date such upgrades must be provided free of cost to the County.
- 9.2.5 Complete installation drawings and as-built drawings must be provided in hard copy and electronic format at the end of installation work.
- 9.2.6 If any component in the mechanical system, like a valve or solenoid or relay will need replacement as a result of the new control system, the same shall be accomplished as a part of this scope of work. Cost of these mechanical components must be included in the total price quoted, however details of such replacement showing the size, make and part number of each component must be separately included in the bid.
- 9.2.7 The Building Automation System (BAS) as provided may incorporate a hierarchical architecture incorporating products like Niagara AX and using connectivity tools like JACE (Java Application Control Engine) or

- equivalent. Such products must be accepted in writing by Fulton County.
- 9.2.8 The controller platform shall be designed specifically to control HVAC – ventilation, filtration, heating, cooling, humidification, and distribution. Equipment includes: constant volume air handlers, VAV air handlers, packaged RTU, heat pumps, unit vents, fan coils, natural convection units, and radiant panels and must allow standard and customizable control solutions required in executing the “Sequence of Operation”.
- 9.2.9 All graphics and navigation schemes for this project must be compatible with or capable of being integrated to the Niagara-AX framework servers (Darnell Senior Center and North Fulton Service Center) if such an architecture is proposed.
- 9.2.10 Price quoted must include following costs, if applicable.
1. Support during warranty period; and
 2. At least eight (8) hours of training to Fulton County technicians in operation and maintenance of the system.

SECTION 10

EXHIBITS

- A. Direct Digital Controls And Building Automation System - Building Automation Division Guide Specifications
- B. Fulton County Government's DoIT Requirements

FC-BAS-Rev 1

DIRECT DIGITAL CONTROLS AND BUILDING AUTOMATION SYSTEM FULTON COUNTY FACILITIES AND TRANSPORTATION DEPARTMENT BUILDING AUTOMATION DIVISION GUIDE SPECIFICATIONS

This document provides specific guidelines and requirements for design, installation and configuration of Direct Digital Controls and Building Automation System for Fulton County buildings. These specifications are applicable for new installations and to the extent applicable, for upgrades and replacements.

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PART 1 – GENERAL

1.1 DIRECT-DIGITAL CONTROL (DDC) SYSTEM DESCRIPTION

- A. The Controls Contractor shall supply and install a complete Direct Digital Control (DDC) Building Automation System (BAS) as required to accomplish the Sequences of Control for heating, ventilating, air-conditioning and other building-level equipment and systems as described herein.

1.2 1.2 WORK INCLUDED

- A. Furnish all labor, materials, equipment and service necessary for a complete and operational DDC BAS pursuant with this specification and as shown on the associated contract drawings.
- B. Coordinate the existing conditions and requirements of all mechanical and electrical equipment that will be controlled by the DDC BAS.
- C. Coordinate interface requirements for integration into BAS of following building-level equipment and systems:
 - 1. Computer/Server Room Air Conditioning Units
 - 2. Utility Metering
 - 3. Occupancy, Lighting controls
 - 4. Variable Speed Drives
- D. All labor, material, equipment and service not specifically referred to in this specification or on associated drawings that are required to fulfill the functional intent of this specification shall be provided at no additional cost to the Owner.

1.3 DDC SYSTEM REQUIREMENTS

DDC Systems installed under this specification shall strictly adhere to the following characteristics:

- A. Building Automation System (BAS) Direct Digital Controls (DDC) shall consist of native BACnet, microprocessor-based, peer-to-peer, networked, and distributed devices utilizing the BACnet communication protocol in an open, interoperable system. The BAS also must include operator interface devices, programming and configuration software applications, DDC input/output devices, non-DDC automatic temperature controls, enclosures and interconnecting conduit and wire. The following requirements must be satisfied:
 - 1. The BACnet operating stack must be embedded directly in every Device at the board level, and in all operator interface software packages.
 - 2. No Gateways, Communication Bridges, Protocol Translators or any other device that translates any proprietary or other communication protocol to the BACnet communication protocol shall be permitted as a part of the BAS installation pursuant with this specification section. Gateways may only be used as

- required for communication to existing systems or systems installed pursuant with other specification sections.
3. DDC controllers that are not BACnet compliant shall not be acceptable under this specification and are strictly prohibited.
- B. The BAS shall be modular in nature and comprising of a network of stand-alone DDC devices. The System shall be designed and implemented in such a way that it may be expanded in both capacity and functionality through the addition of DDC Devices, sensors, actuators, etc.
 - C. All BAS controllers shall be tested, certified, clearly stamped and listed by the BACnet Testing Laboratories (BTL).
 - D. Program database, data acquisition, and all control sequence logic shall reside in each DDC Device. The Building Level Communication Network (BLCN) shall not be dependent upon connection to a Server or Master Controller for performance of the Sequence of Control as outlined in this specification. Each individual Device shall, to the greatest possible extent, perform its programmed sequence without reliance on the BLCN.
 - E. BAS shall be provided with a complete Web enabled operator interface. The Web enabled application shall operate on industry standard PC hardware. Proprietary server hardware or “Black Boxes” will not be acceptable. Third party Web enabled applications are acceptable if they are configured to be indistinguishable from the OWS applications.
 - F. The Owner at the Owner’s expense shall provide connection to the Internet for the BAS. The LAN connection type and configuration (TCP/IP addressing scheme, etc.) will be information provided to the System Contractor from the Owner, or Owner’s representative.
 - G. All BAS DDC Devices at all levels shall be fully custom-programmable in the field using the standard Operators Workstation Software. No configurable, canned program application specific controllers will be permitted.
 - H. All BAS DDC Devices shall be capable of updating firmware using software via internet without replacing any hardware, microprocessors or chips.
 - I. The BAS shall be capable of sending system alarms and Event Notifications to Cell Phones, and email services.
 - J. Actuation of control devices shall be electronic. Spring return fail-safe actuation shall be provided when loss of property and/or property damage is possible and where specified.
 - K. DDC Automatic Temperature Control (ATC) System shall prevent all controlled equipment from simultaneously restarting after a power outage. The order in which equipment (or groups of equipment) is started; along with the time delay between starts shall be user-selectable.
 - L. All binary output points shall be protected from short cycling via output configuration and/or programming. This feature shall allow minimum on time and off-time to be configurable.

1.4 BASIC SYSTEM ARCHITECTURE

- A. The DDC BAS as provided and installed under this specification shall be a complete system from a single manufacturer, designed for use on intranets and the internet.
- B. The primary BAS components must include all of, but not limited to, the following:
 - 1. Web Server with operating software
 - 2. Operator Workstation Software (B-OWS)
 - 3. Remote Operator Workstation Software (Remote B-OWS)
 - 4. Portable Operator Workstation Software (Portable B-OWS)
 - 5. Building Controllers (B-BC)
 - 6. Advanced Application Controllers (B-AAC)
 - 7. Application Specific Controllers (B-ASC)
- C. Enterprise Level Communication Network (ELCN) shall consist of high-speed BACnet/IP Local Area Network (LAN) and/or Wide Area Network (WAN) to host Operators Workstations (B-OWS), Building Controllers (B-BC), Building Level Communication Networks (BLCN) and Web-Enabled remote connectivity.
- D. Building Level Communication Network (BLCN) shall consist of a BACnet internetwork to host field level DDC Controllers.
- E. B-BC's shall automatically route BACnet communications to all configured available BACnet networks.
- F. B-OWS and B-BC's shall be fully IT-compatible devices that communicate directly on a TCP/IP Local Area Network (LAN). The following requirements must be satisfied.
 - 1. LAN shall be 10/100Mbps TCP/IP with the following minimum requirements:
 - a. Cable: 10 base-T, UTP-8 wire, category 5e or greater
 - b. Minimum throughput: 10Mbps with the ability to increase to 100Mbps
 - 2. Enterprise Level Communication Network (ELCN) shall provide communication between B-BC"s, B-OWS, remote B-OWS and Web Server using a B/IP LAN backbone.
 - 3. B-BC"s shall connect directly to the LAN and communicate using B/IP without a TCP/IP Gateway or network server
 - 4. Owner shall be responsible for providing TCP/IP networking scheme, addressing. It shall be the responsibility of the BAS Contractor to coordinate implementation of the BAS on the Owner's LAN without disruption.
- G. BAS Manufacturer must natively support the following BACnet data links as defined in the ANSI/ASHRAE Standard 135-2008, BACnet:
 - 1. Point-to-Point (PTP)
 - 2. Master Slave/Token Passing (MS/TP)

3. Ethernet (ISO 8802-3)
 4. BACnet IP (B/IP)
- H. Field sensors and control devices shall connect to peer-to-peer, fully programmable B-BC, B-AAC & B-ASC as required to achieve the point monitoring and Sequence of Control as specified herein. All devices are to be monitored by a B-OWS. Final control devices are to be electronic.
- I. Each Mechanical System and/or major piece of Mechanical Equipment shall have one (1) dedicated DDC controller with sufficient I/O capacity such that it shall be connected to ALL field devices and sensors associated with that system and/or piece of equipment. Distributed control of one (1) single piece of major mechanical equipment shall not be performed by multiple controllers.
- J. All BAS controllers, sensors and devices shall be UL listed.
1. All BAS controllers and interface devices must be UL 916 Listed
 2. Where required by the local Authority Having Jurisdiction (AHJ), all BAS controllers and interface devices must be UUKL-UL 864 Listed

1.5 MATERIAL FURNISHED UNDER THIS SECTION BUT INSTALLED UNDER OTHER SECTIONS

- A. Provide and coordinate installation of the following components supplied under this Section but installed under other Divisions of this specification.
- B. Automatic control valves, thermo-wells, liquid flow switches, and liquid flow sensors are to be installed by Mechanical Contractor.
- C. Automatic control dampers, airflow measuring stations, and duct-mounted airstream sensors and devices to be installed by Mechanical Contractor
- D. Air Terminal Unit (ATU) B-ASC with integral damper operators is to be installed at factory by ATU manufacturer.

1.6 RELATED SECTIONS

Work related to this Section but covered by other Sections include but are not limited to:

- A. "Integrated Automation System"
- B. "Heating, Ventilating and Air-Conditioning"
- C. "Electrical System"
- D. "Lighting Control Systems"

1.7 QUALITY ASSURANCE

- A. The BAS Contractor shall be responsible for inspection and Quality Assurance (QA) for all materials and workmanship provided under this Specification Section.

- B. BAS components shall be manufactured by firms regularly engaged in the manufacture of equipment of the types, sizes and service required.
- C. The BAS Contractor shall be a factory certified contractor specializing and experienced in BAS installations and must be experience in networked microprocessor based commercial HVAC, building and enterprise level control systems.
 - 1. BAS Contractor shall maintain a comprehensive service office location within 100 miles of project location prior to bid date and at a minimum until the completion of the warranty period.
- D. The BAS Contractor shall use technicians and application engineers certified by the manufacturer in the installation, configuration, programming and service of the BAS products
- E. The BACnet internetwork shall be based upon the Manufacturer's standard integrated hardware and software product design intent and in accordance with Manufacturer's installation and application documentation.
- F. To the highest extent practical, all BAS equipment of the same type serving the same function shall be identical and from the same manufacturer. All new B-ASC, B-AAC, B-BC, B-OWS software and web-server software shall be the products of a single manufacturer.
- G. The completed and operational BAS shall be in compliance with and meet the requirements of all governing bodies, Authorities Having Jurisdiction (AHJ), applicable local or national standards and codes, except where more stringent or detailed requirements are indicated by the Contract Documents, including the requirements set forth in this Specification and the following:
 - 1. American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE)
ASHRAE 135-2008: BACnet – Building Automation and Control Networking Protocol
 - 2. National Institute of Standards and Technology (NIST)
NIST IR 6392 Annex B: Profiles of Standard BACnet Devices
 - 3. Underwriters Laboratories (UL):
 - a. UL 916: Energy Management Systems (EMS)
 - b. UUKL-UL 864: Control Units and Accessories for Fire Alarm Systems
 - 4. Institute of Electrical and Electronic Engineers (IEEE)
IEEE 142: Recommended Practice for Grounding of Industrial and Commercial Power Systems
 - 5. Electronics Industries Association (EIA):
 - a. EIA-232: Interface between Data Terminal Equipment and Data Circuit-Terminating Equipment Employing Serial Binary Data Interchange; and

- b. EIA-485: Standard for Electrical Characteristics of Generator and Receivers for Use in Balanced Digital Mutli-Point System
6. Federal Communications Commission (FCC) Part J: Class “A” Applications

1.8 SYSTEM PERFORMANCE

- A. The system shall conform at a minimum to the following performance standards:
 1. Graphics shall display with a minimum of 50 dynamic real-time data points and within 10 seconds of the request.
 2. The maximum time between the command of a binary object by the operator and the reaction by the device shall be 10 seconds. Analog objects shall start to adjust within 10 seconds of being commanded to change.
 3. All changes of state or change of analog values shall be transmitted such that no reporting of a value is more than 15 seconds old.
 4. The maximum time from when an object goes into alarm to when it is annunciated at the B-OWS shall not exceed 20 seconds. Those points denoted as critical shall be annunciated within 5 seconds.
 5. B-BC, B-AAC, & B-ASC shall be able to execute control loops at a selectable frequency at least 1 time every second. The controller shall scan and update the process value and output generated by this calculation at this same frequency at a minimum.
 6. All B-OWS on the network shall receive alarms within 5 seconds of each other.
 7. No devices utilizing mercury shall be acceptable for any application.
 8. Unless noted otherwise in these Specifications, the end-to-end accuracy from sensor to operator interface shall be as noted in Table 1.

Table.1 - System Accuracy

Measured Variable	Reported Accuracy
Space temperature	+/-0.5 deg C (+/-1 deg F)
Ducted air	+/-1.0 deg C (+/-2 deg F)
Outside air	+/-1.0 deg C (+/-2 deg F)
Water temperature	+/-0.5 deg C (+/-1 deg F)
Delta-T	+/-0.15 deg C (+/-0.25 deg F)
Relative humidity	+/-2% RH 10-90% RH
Water flow	+/-2% of actual value
Air flow (terminal)	+/-10% of actual value (Note 1)
Air flow (measuring stations)	+/-2% for calibrated range.
Air pressure (ducts)	+/-25 Pa (+/-0.1 "WG)
Air pressure (space)	+/-3 Pa (+/-0.01 "WG)
Water pressure	+/-1PSI (Note 2)
Electrical Power	±2% of Range (Note 3)
Carbon Monoxide (CO)	+/-5% of Reading
Carbon Dioxide (CO ²)	+/- 50 PPM

Note 1: (10% to100% of scale) (cannot read accurately below 10%)

Note 2: for both absolute and differential pressure

Note 3: * not including utility supplied meters

- a. Overall combined system repeatability of sensors, controllers and readout devices for a particular application shall be plus or minus 2% of full scale of the operating range. Repeatability of overall combined system of sensor, controller and readout device in a control loop application will be plus or minus 5% of full scale of the operating range.
 - b. Long term electronic drift shall not exceed 0.4% per year.
9. The system provided shall be expandable to at least 500,000 hard pints without additional database licensing fees, or replacing any devices, software or wiring provided herein.
 10. All components provided as part of this system shall operate under ambient environmental conditions of 0°C (32F) to 40°C (104F) dry bulb and 10% to 90% relative humidity, non-condensing as a minimum. Sensors and control elements shall operate under the ambient environmental temperature, pressure, humidity, and vibration conditions encountered for the installed location. B-OWS equipment (hardware only), such as CRTs and printers, shall, unless designated otherwise, operate properly under ambient environmental conditions of 7°C (45F) to 32°C (90F) and a relative humidity of 10% to 90%.
 11. Networked components of the system shall be able to operate at 90% to 110% of nominal voltage rating and shall perform an orderly shutdown below 80%.

1.9 SUBMITTALS

- A. All submittals and documentation including complete BAS System Engineering Design Submittal & Drawings, Project Record Documents, Application Engineering Documents and Owner's & Maintenance Manuals shall be submitted electronically in the form of an Adobe Portable Document Format (.pdf). All Control Schematics, Wiring Diagrams, Riser Diagrams, &c. shall be formatted for A3 11" x 17". All other documentation may be formatted for 8.5" x 11".
- B. Submit in writing and so delineated at the beginning of each submittal, known substitutions and deviations from requirements of Contract Documents. Deviation from Contract Documents must be approved by BAS Department submittal
- C. Complete BAS - DDC Engineering Design Submittal & Drawings shall be prepared pursuant with the following guidelines:
 1. Submittal documentation and drawings shall consistently use the same abbreviations, symbols, nomenclature and identifiers. Each control system element shall be assigned a unique identifier pursuant with the Contract Documents.
 2. Submittal documentation and drawings shall have at the beginning an Index and Design Drawing Legend.
 - a. Index shall list all design drawings and elements including the drawing number, sheet number, drawing title, etc.
 - b. Legend shall show and describe all symbols, abbreviations and acronyms used on the Design Drawings
- D. Submit the following:
 1. A complete bill of materials of all equipment, controllers, devices and sensors to be provided and/or used indicating unique equipment identifier/tag, unique device/controller identifier/tag, manufacturer and model number.
 2. Riser diagram of Building Level Communication Network (BLCN) and Enterprise Level Communication Network (ELCN) shall outline execution and details of all network cabling, BAS & Network Hardware including the following:
 - a. All BAS/DDC Hardware with controller number, unique identifier/tag, location, equipment and service
 - b. All Network Hardware with unique identifier, location and service
 - c. Network cabling configuration and execution specification
 - d. Location of all cabling termination points and End of Line (EOL) terminators
 - e. Location of all network interface jacks
 - f. A separate riser diagram shall be provided for each network segment
 3. A schedule of all control valves including the unique equipment identifier/tag, valve size, dimensions and installation/maintenance clearance, model number (including pattern and connections),

- close-off rating, flow, CV, pressure drop, pressure rating and location. The valve schedule shall also contain actuator selection data supported by calculations of the force required to move, close and seal the valve at design conditions.
4. A schedule of all control dampers. This shall include the unique equipment identifier, unique damper identifier/tag, damper size, pressure drop, blade configuration, orientation and axis of frame, blade rotation, location and selection criteria of actuators, nominal and actual sizes, and manufacturer and model number. The Damper Schedule shall include the AMCA 500-D maximum leakage rate at the operating static-pressure differential.
 5. Provide manufacturers cut sheets for major system components. When manufacturer's cut sheets apply to a product series rather than a specific product, the data specifically applicable to the project shall be highlighted or clearly indicated by other means. Include for every BAS component including but not limited to the following:
 - a. Operator Workstation (B-OWS)
 - b. Building Controllers (B-BC)
 - c. Advanced Application Controllers (B-AAC)
 - d. Application Specific Controllers (B-ASC)
 - e. Provide a BACnet Protocol Implementation Conformance Statement (PICS) or BIBB table for each BACnet device type in the submittal.
 6. Provide shop drawings and/or manufacturer's standard specification submittal data sheets for all associated BAS equipment, sensors and control devices including unique identifier/tag, manufacturer model number and specific accessories, mounting, etc...
 7. Sequence of Operation shall be submitted for every piece of equipment being controlled by and/or associated with the BAS. No operational deviation from specified Sequences of Operation as outlined in Contract Documents shall be permitted without prior written approval. Sequences of Operation shall include and conform to the following:
 - a. Reference to equipment and control devices by their specific unique identifiers/tags pursuant with the Contract Documents and BAS Submittal package.
 - b. Clearly represent actual Application Programming methodology and functional control operation. Do not merely provide a copy of Contract Document specified Sequence of Control.
 - c. Include description of functional system operation under normal and failure conditions.
 8. BAS Control Schematics and Wiring Diagrams shall be submitted for every piece of equipment being controlled by and/or associated with the BAS. BAS Control Schematics and Wiring Diagrams shall include and conform to the following:

- a. Control Schematic flow diagram of each system (air, water, gas, & etc.) being controlled showing actual physical configuration and control device/sensor location of all fans, coils, dampers, valves, pumps, heat exchangers, control devices, &c. including each hardware point type, controller and mnemonic.
 - b. Controller termination details showing every controller point termination, type and mnemonic.
 - c. Wiring Diagrams of all packaged equipment, motor starters, relay wiring, equipment interlock, safety circuits, & etc. clearly indicating all interconnecting wiring and termination of all conductors and cables including labels of all cables and point mnemonics.
 - d. Control Enclosure details for every enclosure including panel identifier, location, physical lay-out, dimensions, instrumentation, labels, & etc. Also include detail wiring (I/O, network and power) and power source for each panel, transformer and controller.
- E. Project Record Documents. Upon completion of installation and systems commissioning submit record documents for review. "As-Built" Project Record Documents should include:
1. Project Record Application Engineering Drawings shall include all BAS System Engineering Design Submittal with Drawings updated to reflect actual field conditions, architecture and execution
 2. Operating & Maintenance (O&M) manual including:
 - a. Operator's Manual with Manufacturers' complete operating instructions.
 - b. Programming manual giving documentation of all project specific Application and DDC programs:
 1. All necessary system Administrator-Level passwords and/or required access credentials.
 2. Information required for programming BAS.
 3. Complete Final Point Schedule including all hardware and software data points and documentation of calibration and configuration values for all Inputs, Outputs, Variables and PID Loops at the conclusion of systems commissioning and functional testing.
 4. Routine preventative maintenance procedures, corrective diagnostic troubleshooting procedures and calibration processes.
 5. Final Bill of Material with all installed parts, manufacturers, manufacturers' part numbers and ordering information.
 6. A schedule of recommended spare parts with part numbers and supplier.

- c. Complete system database as functional at the conclusion of systems commissioning and functional testing including all graphics and images used by and/or created for BAS on electronic format as accepted by Owner.

1.10 CALIBRATION, COMMISSIONING, DEMONSTRATION AND ACCEPTANCE

A. Calibration and Commissioning

1. As a part of this contract, the BAS Contractor shall fully commission the entire BAS. All commissioning shall be fully documented and all documentation shall be submitted prior to Demonstration and Acceptance testing. Commissioning shall include a "point-to-point" check-out of the following at a minimum:
 - a. Verify that all Temperature Control Panels (TCP), BAS equipment, controllers, devices and sensors are installed and operational according to the specifications, submittals and manufacturer's installation and application instructions
 - b. Test, calibrate and bring on-line every control device.
 - c. Calibrate all inputs by comparing the actual site condition with the B-OWS point display.
 - d. Verify all outputs from B-OWS command to observed response of controlled device.
 - e. Verify failure response and fail-safe conditions of all devices and safeties.
 - f. Each control program shall be fully commissioned and tested for complete design intent compliance and functionality.
 - g. Verify overall network performance of BAS for complete design intent compliance and functionality with all devices on-line, communicating and fully-operational.
 - h. Subsystems not directly controlled by the BAS but associated with the ATC shall also be fully tested and commissioned as to design intent compliance and functionality.

B. Demonstration and Acceptance

1. As a part of this contract, the BAS Contractor shall demonstrate compliance of the BAS with the contract documents and operational functionality pursuant with the design Sequences of Operation. Using the documented calibration and commissioning test data the Owner and/or his representative shall select, at random, results to be demonstrated. At least 95% of the results demonstrated must perform as specified and documented on commissioning data sheets or the system must be re-calibrated and re-commissioned before being re-tested.
2. When the Calibration, Commissioning, Demonstration and Acceptance process has been completed and approved by Owner, Contractor shall be provided with signed letter from Owner indicating Acceptance within ten (10) days of approval.

1.11 TRAINING

- A. As a part of this contract, the BAS Contractor shall provide instruction on the adjustment, operation and maintenance of the BAS as installed including all hardware and software provided by a manufacturer-trained, competent application engineer and/or technician with sufficient experience in the installation, programming and operation of the BAS. All training equipment and material shall be provided by this Contractor.
- B. Training shall be scheduled within thirty (30) days of BAS Acceptance and shall consist of a 1-day operational training program for up to 4 operators at the discretion of the owner. A training day shall be defined as an 8-hour day of instruction Monday through Friday during regular working hours, including two (2) 15-minute breaks and excluding lunchtime and travel.
- C. On-site training to cover the entire execution of the complete BAS and components. Training shall be performed at owner's site and shall include:
 - 1. Location of all TCP's, Control Enclosures, controllers, devices, sensors, etc...
 - 2. Equipment Layout
 - 3. Sequences of Operation
 - 4. Maintenance and Repair
 - 5. Troubleshooting
 - 6. Preventative Maintenance
 - 7. Sensor Calibration
 - 8. Proper Use of Service Tools and Materials
- D. At the discretion of the Owner, on-site training and installed system demonstration sessions may be video-taped
- E. Instructor shall provide one (1) copy of training materials for each attendee at the time of the training. Two additional copies of training materials shall be provided to Owner at time of training at the request of the Owner for archival. Training materials shall include:
 - 1. Agenda
 - 2. Defined objectives for each lesson
 - 3. Copies of audio-visuals and/or Power Point Presentations

1.12 WARRANTY, MAINTENANCE, NORMAL AND EMERGENCY SERVICE

- A. BAS manufacturer shall warranty all DDC controllers to be free of defect in material and workmanship under normal operation and expected service as published by the manufacturer in the unit's performance specifications for a period of three (3) years at a minimum.
 - 1. BAS manufacturer shall warranty all DDC controller on-board integral carbon dioxide (CO₂) sensing elements to be free of defect in material and workmanship under normal operation and expected service as published by the manufacturer in the unit's

- performance specifications for a period of two (2) years at a minimum.
2. BAS manufacturer shall warranty all DDC controller on-board integral relative humidity (RH) sensing elements to be free of defect in material and workmanship under normal operation and expected service as published by the manufacturer in the unit's performance specifications for a period of one (1) year at a minimum.
- B. As a part of this contract, the BAS Contractor shall warranty all other components of the BAS and installation to be free of defects in workmanship and material under normal expected service and use for a period of one (1) year from the date of final acceptance of the BAS by the Owner.
 - C. During the installation warranty period the Contractor shall provide all labor and materials required to repair or to replace all items or components that fail due to defects in workmanship or manufacture at no charge or reduction in service to the Owner.
 - D. Except in the event of property loss or damage, warranty service shall be provided during regular working hours Monday through Friday at no charge unless otherwise explicitly outlined in the Contract Documents.
 1. Emergency service performed outside of these parameters shall be performed for charge by BAS Contractor according to the provisions where set forth in the relevant Contract Documents.

END OF PART 1

PART 2 – PRODUCTS

2.1 ACCEPTIBLE MANUFACTURERS

- A. Johnson Controls
- B. Siemens Controls
- C. Controls Concept (Delta Controls/Talon Controls)
- D. Automated Logic Controls

2.2 BACNet WEB SERVER

- A. The WEB Server Hardware shall comply with the following:
 - 1. Operating System: Microsoft Windows Server 2012 Standard Edition or Microsoft Windows Server 2008 Standard Edition
 - a. Where multiple simultaneous user access is not required, hardware platform may alternately be at a minimum Microsoft Windows 7
 - 2. Processor: Pentium Quad Core 2 GHz
 - 3. Memory: 4GB
- B. The WEB Server Database shall comply with the following:
 - 1. Complete controller database of each B-BC, B-AAC, and B-ASC shall reside (at a minimum) within the respective device. The Web Server Hardware may retain and utilize a backup of the database within each device; however, the complete and original database must reside in the B-BC, B-AAC, and B-ASC.
- C. The WEB Server Software shall comply with the following:
 - 1. Provide licensed copy of the Control System WEB Enabled Application Software described in Section 2.4. This license shall allow unlimited isolated systems to be served, and access by an unlimited number of users.
 - 2. The Owner shall sign a copy of the manufacturer's standard software and firmware licensing agreement as a condition of this contract. Such license shall grant use of all programs and application software to Owner as defined by the manufacturer's license agreement, but shall protect manufacturer's rights to disclosure of trade secrets contained within such software.
 - a. Manufacturer's Standard Software and Firmware licensing agreement shall be executed by Owner in writing prior to software acquisition and/or installation.

2.3 WEB ENABLED APPLICATION SOFTWARE

- A. The WEB Enabled Application software and Graphical User Interface (GUI) are to be stored on the WEB hard disk drive server. WEB Enabled Applications that require system graphics to be stored on the client machines will not be acceptable. The application shall support unlimited

- access by a maximum of 20 Simultaneous clients using standard Web browser such as Internet Explorer.
- B. The WEB enabled application shall perform native BACnet communications directly to all BACnet devices on the BACnet internetwork. Applications that require translation of data, gateways, or mapping of any kind shall not be acceptable.
 - C. The WEB Enabled Application shall provide the same methodology as the B-OWS application when viewing the BACnet Internetwork in terms of network architecture, system graphics, calendars, logs, etc. Systems utilizing Web Enabled Applications and Control Operator Workstation Applications of different manufacturer shall implement both applications so that the methodology is the same. Control Systems that utilize different methodology between the WEB Enabled Application and the Control System Operator Workstation Application for network architecture views, system graphic presentation or request, object, schedule or alarm interaction will not be acceptable.
 - D. Real-time values displayed on a Web page shall update automatically without requiring a manual “refresh” of the Web page.
 - E. Users shall have administrator defined access privileges. Depending on the access privileges assigned, the user shall be able to utilize those features described herein at different levels of interface varying between View only and Modify.
 - F. HTML programming shall not be required to create or display system graphics or data on a Web page.
 - G. A new point displayed on a B-OWS graphic screen shall appear automatically on the identical graphic screen served by the web-server with no further programming or file transfer required.
 - H. The WEB Enabled Application shall support via the Web Browser client the following as it is described in the Control System Operator Workstation Application as a minimum:
 - 1. Password Protection
 - 2. Alarming and Event Notification
 - 3. Weekly, Annual and Special Event Exception Scheduling
 - 4. Trend Log Graphing, and the capability to export in ASCII and Microsoft Excel format
 - 5. Runtime Log Information
 - 6. Ability to Manually Override any Database point
 - 7. Ability to Adjust any Setpoint
 - I. The WEB Enabled Application shall support via the Web Browser client the following in addition to what is described above:
 - 1. Color Graphical User Interface (GUI)
 - a. All color graphic displays shall be dynamic with current point data automatically updated from the BACnet internetwork to the browser without operator intervention.

- Manual operator intervention shall use the same methodology as on the B-OWS application.
- b. Depending upon configured access level; the operator shall be able to manually adjust digital, analog or calculated values in the system, adjust values of control loops, override points or release points to automatic mode.
2. System Graphic screens developed for the B-OWS shall be the same image file used for the Web Browser Client. Systems, which require special translation or re-export of graphics to accommodate the web domain, will not be accepted. The Web Browser client shall support any System Graphic animation supported by the B-OWS. System Graphic screens on the Web Browser client shall support hypertext links to other location on the Internet or on Intranet sites by specifying the Uniform Resource Locator (URL) for the desired link.
- J. The WEB Enabled Application shall provide the capability to create a user's (as determined by the log-on user identification) home page. Provide the ability to limit a specific user to a 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.
 - K. The WEB Enabled Application shall include an Audit Trail feature that automatically records the time, date, and user, and action associated with all user changes made via Web Browser clients.
 - L. The WEB Enabled Application shall store complete help files describing system configuration, and use of the Browser Client interface. The help files shall be served on-line as part of the Browser Client interface. Creation, storage and serving of custom-made help files by the owner shall be possible, in lieu of the manufacturer's help files.

2.4 OPERATORS WORKSTATION PLATFORM (B-OWS)

- A. Provide as specified herein complete all associated Operating System, Operators Workstation Application Software and Third-Party Software Applications, preloaded and configured
- B. Local Operators Workstation (B-OWS) shall be PC-based desktop workstation. Common BAS database and graphic files shall be stored on workstation designated and acting as the system server. Workstation Hardware minimum requirements are as follows:
 1. Intel Pentium IV 3 GHz Processor
 2. 2 GB RAM
 3. 10 GB or larger hard disc drive with 12 millisecond access time
 4. 16x DVD+/-RW
 5. 22" Flat Panel LCD Monitor and 128 MB high performance graphics adapter with a minimum resolution performance of at least 1680 x 1050.
 6. Tower case with at least two spare drive slots and 3 spare board slots.
 7. At least one (1) Ethernet 10/100 Network Interface Card (NIC)

8. At least four (4) USB 2.0 ports
 9. Enhanced style keyboard with 101 key layout, 10 function keys, numeric keypad and separate cursor control pads.
 10. Two button mouse with adjustable sensitivity and desk pad.
 11. All necessary cables
 12. A combination surge suppressor/UPS dedicated to this server and printer.
 13. Provide an integral audio tone generator to activate on detection of an alarm. Audio tone shall be capable of being enabled or disabled on operator command.
- C. Remote Operators Workstation (Remote B-OWS) shall be PC-based desktop workstation. Workstation Hardware minimum requirements are as follows:
1. Remote B-OWS shall have the same hardware and software configuration and requirements of the B-OWS
- D. Portable Operators Workstation (Portable B-OWS) shall be notebook computer workstation. Portable Workstation Hardware minimum requirements are as follows:
1. Intel Pentium IV 2 GHz Processor
 2. 2 GB RAM
 3. 10 GB or larger hard disc drive with 12 millisecond access time
 4. 8x DVD+/-RW
 5. 14.1" Flat Panel LCD Monitor and 128 MB high performance graphics adapter with a minimum resolution performance of at least 1280 X 800
 6. At least one (1) Ethernet 10/100 Network Interface Card (NIC)
 7. At least four (4) USB 2.0 ports
 8. 87-key keyboard with touchpad and track stick pointing devices
 9. All necessary cables
 10. Provide an integral audio tone generator to activate on detection of an alarm. Audio tone shall be capable of being enabled or disabled on operator command.
- E. Communications and Protocols
1. B-OWS information access for the control system shall utilize the BACnet protocol only for communication to B-BC"s, B-AAC"s, B-ASC"s and all other BAS DDC controllers
 2. B-OWS shall reside on the same LAN as B-BC"s. B-OWS shall as a minimum support point-to-point (PTP) and BACnet/IP physical/data link layer protocols.
 3. The B-OWS specified here may, at the Owner's option, be located remote from the BACnet internetwork. Other than the difference in B-OWS communication speed, the system shall be capable of remote operation via BACnet LAN types with no degradation in application performance.
- F. B-OWS Operating System (OS) Software shall be consistent on all B-OWS hardware platforms provided.

1. The B-OWS hardware platform OS shall be Microsoft Windows XP Professional Service Pack 2 or newer; or Microsoft Windows 7, or newer.
- G. B-OWS Application Software shall be provided and licensed to Owner. Provide latest versions of software available as follows at a minimum:
1. One (1) Copy of Microsoft Office 2010 Basic
 2. Adobe Acrobat 9.0 Standard

2.5 CONTROL SYSTEM OPERATORS WORKSTATION APPLICATION SOFTWARE

- A. The B-OWS Software shall be provided, licensed and installed on at least one B-OWS Platform. If more than one Platform is provided a licensed copy of the B-OWS Software shall be provided for every Platform.
- B. The Owner shall sign a copy of the manufacturer's standard software and firmware licensing agreement as a condition of this contract. Such license shall grant use of all programs and application software to Owner as defined by the manufacturer's license agreement, but shall protect manufacturer's rights to disclosure of trade secrets contained within such software.
1. Manufacturer's Standard Software and Firmware licensing agreement shall be executed by Owner in writing prior to software acquisition and/or installation
- C. The B-OWS Software shall be BTL listed as either a B-OWS or B-AWS.
- D. Protection
1. Multiple-level password access protection shall be provided.
 2. Passwords shall be exactly the same for all software applications provided to communicate with the internetwork.
 3. A minimum of 10 levels of access shall be supported with a configurable matrix of operator actions allowed for each access level, broken down into at least 200 possible operator actions
 4. A minimum of 50 passwords shall be supported at each B-OWS.
 5. Operators will be able to perform only those commands available for their respective passwords.
 6. User-definable, automatic log-off timers of from 1 to 60 minutes shall be provided to prevent operators from inadvertently leaving B-OWS in an unsupervised logged-in state.
- E. Alarming and Event Notification
1. B-OWS shall utilize BACnet Alarm Events and PICS shall support at a minimum the following BIBBs:
 - a. Alarm and Event – Acknowledge-A (AE-ACK-A)
 - b. Alarm and Event – Notification-A (AE-N-A)
 - c. Alarm and Event – Alarm Summary View-A (AE-AS-A)
 - d. Alarm and Event – View and Modify-A (AE-VM-A)
 - e. Alarm and Event – View Notifications-A (AE-VN-A)

2. B-OWS terminal shall provide audible, visual, and printed means of alarm and event notification
3. System shall provide log of notification messages. Complete Alarm log of all system and operator transactions shall be archived to the hard disk of the system B-OWS.
4. Alarm messages shall be in user-definable text (English or other specified language) and shall be entered either at the B-OWS terminal or via remote communication.
5. An alarm summary shall be available to show all alarms whether including but not limited to whether or not they have been acknowledged.
6. System shall provide ability to prioritize and differentiate communications for at least 20 different levels of alarms
7. Alarm messages shall be fully customizable in size, content, behavior and sound.

F. Weekly Annual and Special Event Scheduling

1. B-OWS Software shall utilize BACnet Schedules and PICS shall support at a minimum the following BIBBs:
 - a. Scheduling – Advanced View and Modify-A (SCH-AVM-A)
2. Provide ability to view and modify the schedule for the calendar week and up to 255 special events in a graphical format. Each calendar day and special event shall provide at least six time/value entries per day.
3. Provide the ability for the operator to select scheduling for either binary, analog, or multi-state object values.
4. Provide the ability for the operator to designate days, date ranges, or repeating date patterns as exception schedules.
5. Provide the capability for the operator to define special or holiday schedules and to link the BACnet schedule to a BACnet calendar, thereby over-riding weekly schedule programming on holidays defined in the BACnet calendar.
6. There shall be a provision with proper password access to manually override each schedule.
7. Provide the capability to designate any exception schedule to be “Executed Once” then automatically cleared.
8. Provide the ability to name each exception schedule with a user defined term to describe each special event.

G. Trend Log Graphing

1. B-OWS Software shall allow viewing of BACnet Trend Logs and PICS shall support at a Minimum the following BIBBs:
 - a. Trending – View-A (T-V-A)
2. All data points (both hardware and software) system-wide shall be assignable to a historical trending program by gathering configurable historical samples of object data stored in the local controller (B-BC, B-AAC, B-ASC).

3. All trend log information shall be displayable in text or graphic format. All information shall be able to be printed in black & white or color and exported directly to a Microsoft Excel Spreadsheet.
4. Long-term archives shall be automatically stored on the B-OWS platform or automatically stored onto a dedicated server using an SQL database data acquisition service. The B-OWS and/or SQL Database Application shall perform the following at a minimum:
 - a. Be capable of automatically retrieving any trend-log from any device on the network without user-intervention
 - b. Manage connection to internetwork automatically based upon configurable data acquisition thresholds; retrieving data only when necessary rather than streaming data
 - c. Generate standard, secure SQL database accessible by third-party applications
 - d. Shall operate as a Microsoft Windows service
 - e. Archived data shall be limited only by SQL license and hard disk space available
 - f. Be capable of exporting data directly to Microsoft Excel
 - g. Not require a separate “viewer” but shall seamlessly present all archived data together with real-time data stored in device using the standard B-OWS Trend Log Viewer.

H. Runtime Log Information

1. B-OWS Software shall be capable of displaying Runtime and On/Off Cycle data of all Binary data points (both hardware and software) system-wide. Runtime logs shall provide the following at a minimum:
 - a. Total Accumulated Runtime
 - b. Accumulated Starts Today
 - c. Total Accumulated Starts
 - d. Timestamp each Start/Stop and duration of each on/off cycle
 - e. Monitor equipment status and generate maintenance messages based upon user designated run time

I. System Configuration, Set-Up and Definition.

1. Device and network status shall be displayed for any device on the BACnet internetwork. At a Minimum the following Device Management BIBBs shall be supported:
 - a. Device Management – Automatic Device Mapping-A (DM-ADM-A)
 - b. Device Management – Automatic Network Mapping-A (DM-ANM-A)
 - c. Device Management – Reinitialize Device-A (DM-RD-A)
2. All control strategies and energy management routines shall be stored in the controller and shall allow modification and additions

- by the operator using the B-OWS software. No strategies or routines shall be stored on the B-OWS platform.
3. B-OWS Software shall have the capability to back-up and restore the programming and database of any BACnet device on the BACnet internetwork. The B-OWS BTL listing shall support the Device Management – Backup and Restore-A (DM-BR-A) BIBB.
 4. Provide a context sensitive, on-line help system to assist the operator in operation and editing of the system.
- J. Graphical User Interface (GUI)
1. B-OWS Software shall support at a minimum BMP, GIF, TIF, JPG, EMF, PNG, SWF and DIB graphic file formats and allow for the use of custom Flash animation objects and URL hyperlinks in every GUI
 2. B-OWS Software shall provide a color graphics package to allow the user to generate custom dynamic graphics for graphical representation of system design and system parameters. Graphic images may reside on the B-OWS or server; however, all dynamic data and attributes must reside in the controller.
 - a. A listed set of symbols and graphic slides shall be available to allow operators to select from the graphics table to assist in graphic generation.
 - b. All color graphic displays shall be dynamic with current point data automatically updated from the BACnet internetwork to the B-OWS workstation without operator intervention.
 - c. The operator shall be able to manually adjust all data point values (hardware or software) in the system, adjust values of control loops, and command points to local mode or release points to automatic mode.
 - d. The windows environment of the B-OWS shall allow the user to simultaneously view several graphics at the same time to analyze total building operation, and/or to allow the display of graphics associated with an alarm to be viewed without interrupting work in progress.
 - f. Pre-packaged animations for display of fans, pumps, dampers, etc., and shall allow custom user-created .swf and .gif animations to be used to display objects on graphic displays.
 - g. The contractor shall submit all new graphics to BAS Department for approval.
- K. The BAS shall be provided with fully automatic diagnostic procedures for verification of internetwork communication. In the event of communications failure, the system shall automatically Alarm the condition. B-OWS Software shall be capable of remote annunciation to printer, pager and e-mail.

- I. Control Summaries, Reports and Logging:
 1. The system shall provide self-documentation reporting to summarize control strategies for any point or any user selected group of points within the Control System.
 2. The B-OWS reporting package shall allow the user to configure the point information display in custom format.
 3. The B-OWS shall enable operator to perform Wild Card data point sorting and searches
 4. The B-OWS shall perform automated network back-up of runtime databases in all devices on the BACnet network according to operator configurable schedule and storage directory structure

2.6 BUILDING CONTROLLERS (B-BC)

- A. B-BC shall comply with all aforementioned BAS System Requirements and shall comply with the BACnet profile for Building Controllers (B-BC)
- B. Furnish B-BC(s) as necessary to control large point count major mechanical equipment, and execution of BAS global strategies, and as noted in the execution portion of this specification.
 1. Each Mechanical System and/or major piece of Mechanical Equipment (e.g., Chilled Water, Heating Water, Large AHU, etc.) shall have one (1) dedicated DDC controller with sufficient I/O capacity such that it shall be connected to ALL field devices and sensors associated with that system and/or piece of equipment. Distributed control of one (1) single piece of major mechanical equipment shall not be performed by multiple controllers.
 2. Each B-BC shall support local hardware Inputs and Outputs (I/O) by the use of on-board I/O and/or I/O expansion modules.
- C. B-BC shall be capable of locally executing global strategies for the BAS based on information from any object in the internetwork. Control Systems that require a higher-level host processor for update, time stamps, global point data, COS transfer, on-line control instruction, or communications control between B-BC panels shall not be acceptable.
- D. BAS shall communicate with all B-OWS, B-BC, B-AAC & B-ASC on a peer-to-peer basis, and shall provide real-time clock functions for scheduling and network-wide time synchronization
- E. B-BC shall have sufficient memory to support its operating system, database, and programming requirements. Battery/capacitor shall retain static RAM memory and clock functions for a minimum of 72 hours.
 1. B-BC operating system, field database, and application programs shall reside in EEPROM.
 2. B-BC run-time field database and application programs shall reside in battery backed-up on-board memory or EEPROM.

- F. B-BC shall comply with the following Hardware Configuration:
1. B-BC shall have integral power switch. If the device manufacturer provides no on-board switch then the System Contractor shall provide a separate dedicated transformer and switch within each enclosure for each controller present
 2. B-BC shall provide diagnostic LEDs for power, communications and processor status. The B-BC shall continually check the status of its processor and memory circuits
 3. Controller wiring terminals shall be removable terminal strips for ease of installation and service replacement
 4. All hardware inputs shall be Universal (i.e., binary or analog) configured on hardware and/or in software.
 - a. Inputs shall accept dry-contact, thermistor, 4-20 mA, and 0-5VDC
 - b. Pulse accumulation shall accommodate a maximum frequency of 40Hz
 - c. Inputs shall have a minimum 10 Bit A/D conversion resolution
 - d. 24VAC over-voltage protection
 - e. Status LED indicators for each input
 5. All hardware outputs shall be Universal and configured on hardware and/or in software.
 - a. Outputs shall provide configurable modulating voltage signal to industry standard 0-5VDC and 0-10VDC analog control devices and relays
 - b. Outputs shall be capable of sourcing 75mA at 12VDC
 - c. Outputs shall have a minimum 8 Bit D/A conversion resolution
 - d. 24VAC over-voltage and short protection
 - e. On-board integral physical Hand-Off-Auto (H-O-A) Switch for every output. H-O-A switch position shall be monitored and displayed by B-BC.
 1. In addition to H-O-A switch, Universal Outputs shall be provided with on-board integral potentiometer for manual adjustment of analog modulating voltage signal in conjunction with the Hand position
 - f. Status LED indicator for each output
- G. B-BC shall interact with the Control System Application Software in compliance with the following:
- B. Database programming, configuration and modification shall be accomplished through the B-OWS online with the B-BC. The complete database and application program shall reside in the B-BC. The System Contractor shall configure the software to attain

- the proper sequence of control and to accomplish all other control system functions indicated in the Contract Documents.
- C. The B-BC shall function in a real-time, multi-tasking networked operating environment; able to display database values, programs, and control loops in real-time while functional and online using the B-OWS. The user shall be able to add, delete, or modify objects on-line as required without taking the B-BC offline. The programming shall provide all the necessary mathematics, logic, utility and control functions necessary to execute the specified sequence of control.
 - D. All required application programming shall be resident in the B-BC, B-AAC & B-ASC, and third party BACnet devices, and not in the B-OWS.
 - E. B-BC shall manage system-wide alarms by performing distributed, independent alarm analysis and filtering. At no time shall the B-BC panel's ability to report alarms be affected by either operator activity at a B-OWS or local I/O device, or communications with other B-BC on the network.
 - a. B-BCs shall have capability to broadcast alarm conditions automatically across the BLCN. Alarm Event notifications shall be sent to off-site computer or serial printer. A minimum of one B-BC per site shall be capable of sending SMTP email messages to an email server for configured alarm conditions.
 - b. Active Alarm Events log shall be stored on the B-BC and may be viewed locally or remotely.
 - c. All alarm or point change reports shall include the point's English language description, and the time and date of occurrence.
 - d. The user shall be able to define the specific system reaction for each point alarm and shall be able to customize reaction and filtering to minimize nuisance reporting. Each B-BC panel shall automatically inhibit the reporting of selected alarms during the standby power modes of operation, loss of power, fire alarm mode, and normal system shutdown and start-up. Users shall have the ability to manually inhibit alarm reporting for each point.
 - e. Alarm reports, messages, and files can be directed to a user-defined list of operator devices, or PCs used for archiving alarm information.
 - F. B-BC shall perform and manage historical data collection. Minimum sampling time shall be configurable with a minimum sample rate of once per second.
 - 1. B-BC panels shall store point history files for all analog and binary inputs and outputs.
 - 2. Measured and calculated analog and binary data shall also be assignable to user-definable trends.

3. Up to six points of any type can be assigned to a single trend log
 4. Trend data shall be stored at the stand-alone B-BC panels, and uploaded to hard disk storage automatically at preconfigured intervals. Separate archival application software will be acceptable for archiving.
- G. Stand-alone B-BC panels shall automatically accumulate and store runtime hours for binary input and output points.
- H. B-BC panels shall automatically sample, calculate and store consumption totals on a daily, weekly, or monthly basis for user-selected analog and binary pulse input-type points.
- I. B-BC panels shall have the ability to count and/or execute events on a daily, weekly, or monthly basis.
- J. Communication and Protocols
1. The B-BC shall continuously scan the BACnet network and maintain a current database of field data in on board battery/capacitor backed RAM or EEPROM, including alarms, passwords, binding tables, device status, etc. The B-BC shall communicate with BACnet devices on the BLCN using the BACnet physical data link MS/TP at a baud rate of 76.8 Kbps where not limited by third party BACnet devices such as drives, utility meters, etc...
 2. The B-BC shall provide a communications port for connection of the Portable Operators Terminal using Point-to-Point BACnet physical data link layer protocol or a connection to the network using BACnet/IP.
 3. B-BC shall support and be capable of monitoring and controlling a network of communicating remote space sensors. These networked sensors shall occupy input/output hardware points in the B-BC. All Software points must be preapproved by Utility Service BMS manager.
 4. Provide all functions that will allow remote communications to off-site locations.
 5. B-BC shall support at a minimum of two (2) distinct dedicated BACnet/IP (B/IP) data link networks using TCP/IP and one (1) BACnet/Ethernet data link network simultaneously.
 6. B-BC shall support integral communication using Modbus RTU and TCP protocols as both a Slave and Master for building systems third-party integration.
 7. B-BC shall support SMTP and provide stand-alone remote annunciation of alarms via e-mail without additional hardware, B-OWS, or web-server.
 8. B-BC shall support, transmit, and receive of segmented messages.

2.7 ADVANCED APPLICATION CONTROLLERS (B-AAC)

- A. B-AAC shall comply with all aforementioned BAS System Requirements and shall comply with or exceed the BACnet profile for Advanced Application Controllers (B-AAC).
- B. Furnish one dedicated B-AAC(s) for each small or medium sized mechanical system, as noted in the execution portion of this specification. Each B-AAC shall acquire, process, and store point input data on a real time basis for internal use and for sharing with other controllers. Each B-AAC shall also maintain and supervise digital and analog output signals to the control devices and have a real time operating system capable of time of day scheduling and other time based functions.
 - 1. If the hardware point requirements of any medium-sized system should exceed the I/O configuration of available B-AAC offerings then a B-BC must be used. Control of one piece of mechanical equipment may not be performed by more than one controller.
- C. B-AAC shall provide microprocessor based self-contained stand-alone fully programmable operation of local process control loops. All local level application programs shall be installed on individual controllers in non-volatile memory.
- D. Each B-AAC shall be capable of sharing point information with other B-BC, B-AAC, or B-ASC on a peer-to-peer basis via the BACnet BLCN.
- E. Control systems that utilize „canned“ programs or programmable read only memory (PROM) level application programming are not acceptable.
- F. Once downloaded, a B-AAC shall not require further communication with the B-OWS except for data base changes, operator commands, and requests from the B-OWS for B-AAC data. Programming of B-AACs shall be completely modifiable in the field, over the installed BACnet network or remotely via the internet.
- G. Each B-AAC shall be provided with the ability to prevent unauthorized access to its software program.
- H. B-AAC shall have sufficient memory to support its operating system, database, and programming requirements
 - 1. B-AAC operating system, field database, and application programs shall reside in EEPROM.
- I. B-AAC run-time field database and application programs shall reside in on-board memory or EEPROM.
- J. B-AAC shall feature real-time 24-hour clock and 365-day calendar. Battery or capacitor back-up of these functions is required where the B-AAC is installed as a standalone controller.
- K. B-AAC shall be designed for wall-mounting to a single or double-device box in the space
- L. B-AAC shall include on-board integral LCD User Interface for display and modification of local and/or networked BAS data points as follows:

1. LCD screen shall be a minimum of 128 x 64 pixels in a viewable area no smaller than 62mm x 44mm (2.4" x 1.7")
 2. LCD screen shall feature back-lighting configurable for constantly lit or user-defined time out periods with user-adjustable contrast
 3. B-AAC shall feature push-buttons on the face of the controller for user navigation of the local display screens and for entering values and overriding points.
 4. LCD interface shall be capable of displaying and acknowledging local Alarms
 5. LCD interface shall provide as a minimum eight (8) configurable display screens each capable of displaying a minimum of six (6) local and/or networked data points
 - a. All displayed data points shall be configurable as display only or capable of being modified via the interface
 - b. Display shall support at a minimum three (3) user-defined password-protected security permission levels restricting read/write privileges of all displayed data points
 - c. Ability to edit the annual and weekly schedules from the display
- M. B-AAC shall feature a software configurable audible enunciator which shall be configured to trigger on the occurrence of selected alarms, and shall be audible and acknowledgeable either to all users, or only to those users with sufficient password authority.
- N. B-AAC shall comply with the following Hardware Configuration:
1. B-AAC shall provide diagnostic LEDs for power, communications and processor status. The B-AAC shall continually check the status of its processor and memory circuits.
 2. Universal field device hardware inputs shall be provided and configured on hardware and/or in software and comply with the following:
 - a. Inputs shall accept dry-contact, thermistor, 4-20 mA, and 0-5VDC
 - b. Pulse accumulation shall accommodate a maximum frequency of 100Hz
 - c. Inputs shall have a minimum 10 Bit A/D conversion resolution
 - d. 24VAC over-voltage protection
 3. In addition to field device Hardware inputs, the B-AAC shall feature the following on-board integral hardware inputs at a minimum:
 - a. Temperature sensor (local or remote) of ratings as follows
 - 1) 10k Thermistor
 - 2) 0°C to 40°C (32°F to 104°F) range
 - 3) +/- 0.1°C (+/- 0.18°F) resolution
 - 4) User calibrated +/- 0.1°C (+/- 0.18°F)

- b. Setpoint Adjustment Slider
 - 1) 20k potentiometer
 - 2) Range defined, limited and configured via Application Software
 - c. Relative Humidity (RH)
 - 1) 10% – 90% range
 - 2) 0.1% resolution
 - 3) +/- 2% accuracy
 - 4) Replaceable sensing element
 - 5) User calibrated as necessary
 - d. Occupancy
 - 1) Passive Infrared Radiation (PIR)
 - 2) 5m/16.4" detection distance
 - 3) 100° horizontal / 82° vertical detection
 - 4) 64 detection zones
 - e. Carbon Dioxide (CO2)
 - 1) 0 – 2000ppm
 - 2) +/- 30ppm Accuracy
 - 3) Auto-Drift Calibration
4. Hardware Outputs shall be configured as to be modular in nature and support the following characteristics:
- a. Universal Output
 - 1) 0 – 12 VDC @ 75 mA
 - 2) Digital or Analog functional operation
 - b. Single Stage Relay
 - 1) SPDT Form C Dry Contact
 - 2) Minimum 0.5 A @ 24 VAC/VDC Contact Rating
 - 3) NO/NC Selectable
 - c. Single Stage TRIAC
 - 1) Single NO Contact for Switching AC Loads
 - 2) Minimum 0.5 A @ 24 VAC/VDC Contact Rating
 - 3) Minimum Switching Current of 20 mA
5. Universal hardware outputs shall be provided and configured on hardware or in software and comply with the following:
- a. Universal Outputs shall provide configurable modulating voltage signal to industry standard 0-5VDC and 0-10VDC analog control devices and relays
 - b. Outputs shall be capable of sourcing 75mA at 12VDC
 - c. Outputs shall have a minimum 8 Bit D/A conversion resolution
 - d. 24VAC over-voltage and short protection

- O. Control System Application Software:
 - 1. The B-AAC application software shall be the same as and indistinguishable from the B-BC specified interaction with the Control System Application Software.
 - 2. The controller software shall reside in a real time, multi-tasking, networking operating environment. Database definition shall be accomplished through the B-OWS online with the B-AAC. The complete database and application program shall reside in the B-AAC. The System Contractor shall configure the software to attain the proper sequence of control and to accomplish all other control system functions indicated in the Contract Documents.
 - 3. The user shall be able to add, delete, or modify objects on-line as required. The programming shall provide all the necessary mathematics, logic, utility and control functions necessary for proper sequence of control.
- P. Communications and Protocols
 - 1. The B-AAC shall communicate with field devices and controllers on the BLCN using the BACnet physical data link MS/TP at 76.8 Kbps where not limited by third party devices such as variable speed drives, utility meters, etc...
 - 2. The B-AAC shall provide a communications port for connection of the Portable Operators Terminal using Point-to-Point BACnet physical data link layer protocol or a connection to the network.
 - 3. B-AAC shall support and be capable of monitoring and controlling a network of a minimum of four (4) communicating remote space sensors. These networked sensors shall not consume input/output hardware points in the B-AAC.
- Q. B-AAC shall perform and manage historical data collection. Minimum sampling time shall be configurable with a minimum sample rate of once per second.
 - 1. B-AAC panels shall store point history files for all analog and binary inputs and outputs.
 - 2. Measured and calculated analog and binary data shall also be assignable to user-definable trends.
 - 3. Up to six points of any type can be assigned to a single trend log.
 - 4. Trend data shall be stored at the stand-alone B-AAC panels, and uploaded to hard disk storage automatically at preconfigured intervals when archival is desired. Separate archival application software will be accepted.
- R. Stand-alone B-ASC panels shall automatically accumulate and store runtime hours for binary input and output points.

- S. B-ASC panels shall automatically sample, calculate and store consumption totals on a daily, weekly, or monthly basis for user-selected analog and binary pulse input-type points.
- T. B-ASC panels shall have the ability to count and/or execute events on a daily, weekly, or monthly basis.
- U. B-AAC shall support, transmit, and receive of segmented messages.

2.8 APPLICATION SPECIFIC CONTROLLERS (B-ASC)

- A. B-ASC shall comply with all aforementioned BAS System Requirements and shall comply with the BACnet profile for Application Specific Controllers (B-ASC).
- B. Provide one dedicated B-ASC for each Terminal Unit Mechanical Device on the project. Those include Variable Air Volume (VAV) Air Terminal Units (ATU), Serial and Parallel Fan-Powered (FP) VAV ATU"s, Unit Heaters (UH), Unit Ventilators (UV), Fan Coil Units (FCU), Roof-Top Units (RTU) and Individual Fans. Terminal Units specifically called out in the sequence of operation, as "Non-DDC" shall be excluded from this requirement.
- C. B-ASC shall provide microprocessor based self-contained stand-alone fully programmable operation of local process control loops. All local level application programs shall be installed on individual controllers in non-volatile memory.
- D. Each B-ASC shall be capable of sharing point information with other B-BC, B-AAC, or B-ASC on a peer-to-peer basis via the BACnet BLCN.
- E. Control systems that utilize „canned" programs or programmable read only memory (PROM) level application programming are not acceptable.
- F. Once downloaded, a B-ASC shall not require further communication with the B-OWS except for data base changes, operator commands, and requests from the B-OWS for B-ASC data. Programming of B-ASCs shall be completely modifiable in the field, over installed BACnet Internetwork or remotely via modem.
 - 1. Each B-ASC shall be provided with the ability to prevent unauthorized access to its software program.
 - 2. B-ASC shall have sufficient memory to support its operating system, database, and programming requirements.
 - 3. B-ASC operating system, field database, and application programs shall reside in EEPROM.
 - 4. B-ASC run-time field database and application programs shall reside in on-board non-volatile memory or EEPROM.
- G. ASC shall perform and manage historical data collection. Minimum sampling time shall be configurable with a minimum sample rate of once per second.

1. B-ASC panels shall store point history files for all analog and binary inputs and outputs.
 2. Measured and calculated analog and binary data shall also be assignable to user-definable trends.
 3. Up to six points of any type can be assigned to a single trend log.
 4. Trend data shall be stored at the stand-alone B-ASC panels, and uploaded to hard disk storage automatically at preconfigured intervals when archival is desired. Separate archival application software will be accepted.
- H. Stand-alone B-ASC panels shall automatically accumulate and store runtime hours for binary input and output points.
- I. B-ASC panels shall automatically sample, calculate and store consumption totals on a daily, weekly, or monthly basis for user-selected analog and binary pulse input-type points.
- J. B-ASC panels shall have the ability to count and/or execute events on a daily, weekly, or monthly basis.
- K. B-ASC for VAV ATU"s application shall comply with the following:
1. B-ASC shall be provided with integral damper actuator. Actuator shall feature the following at a minimum:
 - a. 35 in-lbs of torque
 - b. Brushless DC Operator
 - c. Actual damper position feedback. Drive time or other software calculated damper
 - d. position shall not be accepted
 - e. Damper End Switch using motor current sense or equivalent for positive feedback of both end stop positions
 - f. Software selectable rotation
 2. B-ASC shall be provided with integral differential pressure transducer, with range of 0–1 inwc, +/-5% FS.
 3. Universal field device hardware inputs shall be provided and configured on hardware and/or in software and comply with the following:
 - a. Inputs shall accept dry-contact, thermistor, 4-20 mA, and 0-5VDC
 - b. Pulse accumulation shall accommodate a minimum frequency of 40Hz
 - c. Inputs shall have a minimum 10 Bit A/D conversion resolution
 - d. 24VAC over-voltage protection
 4. Hardware outputs for field devices shall be provided as follows:
 - a. Three (3) Universal Outputs or One (1) Universal Output, one (1) single stage TRIAC Output, and one (1) Dual Stage TRIAC Output

5. Hardware Outputs shall be configured on hardware and/or in software and comply with the following:
 - a. Universal Outputs shall provide configurable modulating voltage signal to industry 0-5VDC and 0-10VDC analog control devices and relays
 - b. Each TRIAC Output shall source 500 mA current, 24 VAC 0.5 ACA
 - c. Universal Output shall be capable of sourcing 75mA at 12VDC
 - d. Outputs shall have a minimum 8 Bit D/A conversion resolution
 - e. 24VAC over-voltage and short protection
6. Airflow Calibration, Test and Air Balance, etc. shall be performed via dedicated handheld configuration tool connected directly to communication port located at ATU B-ASC sensor] and/or [via the integral SS Flow Calibration interface of each space mounted SS. Special proprietary software and/or applications loaded on a computer or PDA shall not be acceptable to perform this function.
7. B-ASC shall provide diagnostic LEDs for power, communications and processor status. The B-ASC shall continually check the status of its processor and memory circuits
8. Controller wiring terminals shall be 5mm space between poles with removable terminal strips for ease of installation and service replacement
9. B-ASC Enclosure shall be rated as follows:
 - a. NEMA 1
 - b. UL 94-5V
- L. B-ASC for unitary applications shall comply with the following:
 1. B-ASC shall provide diagnostic LEDs for power, communications and processor status. The B-ASC shall continually check the status of its processor and memory circuits.
 2. Controller wiring terminals shall be removable terminal strips for ease of installation and service replacement.
 3. Universal field device hardware inputs shall be provided and configured on hardware and/or in software and comply with the following:
 - a. Inputs shall accept dry-contact, thermistor, 4-20 mA, and 0-5VDC
 - b. Pulse accumulation shall accommodate a minimum frequency of 40Hz
 - c. Inputs shall have a minimum 10 Bit A/D conversion resolution
 - d. 24VAC over-voltage protection

4. Hardware outputs for field devices shall be provided as follows:
 - a. Four (4) Universal Outputs, or Four (4) TRIAC Outputs or One (1) Universal Output, one (1) single stage TRIAC Output, and two (2) Dual Stage TRIAC Output
 5. Hardware Outputs shall be configured on hardware and/or in software and comply with the following:
 - a. Universal Outputs shall provide configurable modulating voltage signal to industry standard 0-5VDC and 0-10VDC analog control devices and relays
 - b. Each TRIAC Output shall source 500 mA current, 24 VAC 0.5 ACA
 - c. Universal Output shall be capable of sourcing 75mA at 12VDC
 - d. Outputs shall have a minimum 8 Bit D/A conversion resolution
 - e. 24VAC over-voltage and short protection
- M. Control System Application Software:
1. The B-ASC application software shall be the same as and indistinguishable from the B-BC specified interaction with the Control System Application Software.
 2. The controller software shall reside in a real time, multi-tasking, networking operating environment. Database definition shall be accomplished through the B-OWS online with the B-ASC. The complete database and application program shall reside in the B-ASC. The System Contractor shall configure the software to attain the proper sequence of control and to accomplish all other control system functions indicated in the Contract Documents.
 3. The user shall be able to add, delete, or modify objects on-line as required. The programming shall provide all the necessary mathematics, logic, utility and control functions necessary for proper sequence of control.
- N. Communications and Protocols
1. The B-ASC shall communicate with field devices and controllers on the BLCN using the BACnet physical data link MS/TP at 76.8 Kbps where not limited by third party devices such as variable speed drives, utility meters, ect.
 2. The B-ASC shall provide a communications port for connection of the Portable Operators Terminal using Point-to-Point BACnet physical data link layer protocol or a connection to the inter-network.
 3. B-ASC shall support and be capable of monitoring and controlling a network of a minimum of four (4) communicating remote space sensors, each with capability of a local LCD Display, adjustable

- set-point and outputs for zone controls. These networked sensors shall not consume input/output hardware points in the B-ASC.
4. B-ASC shall support, transmit, and receive of segmented messages.

2.9 NETWORKED COMMUNICATING SPACE SENSORS

- A. Wall-Mounted Networked Communicating Space Sensors (SS) on a daisy-chained network are not allowed each SS must occupy a hardware point.
- B. Each SS shall provide a Liquid Crystal Display (LCD), where indicated on the drawings, with the following minimum features:
 1. 36mm x 36mm (1.4" x 1.4") display area
 2. Display four (4) 0.6" digits and six (6) 0.3" characters simultaneously
 3. Capable of displaying icons, time, analog, and digital engineering units
 2. Programmable to display up to ten (10) data points in any combination of local and/or networked values from any device on the internetwork
- C. Each SS shall provide a local keypad for local user interface to perform navigation and adjustment of points configured as adjustable.
- D. Each SS shall provide a point of access for a B-OWS, Service Tool, etc. to the BACnet internetwork via the SS communication network.
- E. Where indicated on the drawings, each SS shall provide at a minimum the following on-board integral I/O without the consumption of any inputs and/or outputs at the host DDC controller.
 1. Temperature sensor (local or remote)
 - a. 10k Thermistor
 - b. 12 Bit A/D Conversion
 - c. 0°C to 40°C (32°F to 104°F) range
 - d. +/- 0.1°C (+/- 0.18°F) resolution
 - e. User calibrated +/- 0.1°C (+/- 0.18°F)
 2. Relative Humidity (RH)
 - a. 10% – 90% range
 - b. 0.1% resolution
 - c. +/- 2% accuracy
 - d. Replaceable sensing element
 - e. User calibrated
 3. Occupancy
 - a. Passive Infrared Radiation (PIR)
 - b. 5m/16.4" detection distance
 - c. 100° horizontal / 82° vertical detection
 - d. 64 detection zones

4. Additional Space/Zone I/O
 - a. Two (2) thermistor or dry-contact inputs
 - b. Two (2) TRIAC Outputs (24VAC @ 0.5A)

2.10 TEMPERATURE CONTROL PANELS (TCP), ENCLOSURES & SUB-PANELS

- A. Provide pedestal base or wall mounted local control enclosure to house all control components associated with each area, system or mechanical equipment room:
 1. The enclosures shall be minimum 16 gauge steel or aluminum, totally enclosed on all sides and painted with a baked enamel finish. All enclosures must maintain a minimum separation of 1" from the back wall.
 2. Enclosures located in wet indoor conditions or located outdoors shall meet NEMA 4X.
 3. Penetrations are permitted on bottom of enclosure only. Do not make conduit penetrations in top or side of enclosure. Each enclosure shall be equipped with a wire gutter below with a minimum of six $\frac{3}{4}$ " minimum conduit penetrations into the bottom of the enclosure to accommodate system wiring.
 4. Where required by AHJ, enclosures located in mechanical or electrical rooms shall meet NEMA 2 requirements
 5. Enclosures located in all other locations including but not limited to mechanical or electrical rooms not requiring NEMA 2, occupied spaces, above ceilings and plenums shall be the same NEMA classification as all other enclosures located in the same environment, except if location requires additional protection due to potential vandalism or environmental conditions and shall at a minimum meet NEMA 1 requirements
 6. Enclosures provided as an integral (pre-packaged) part of another product and/or piece of equipment are acceptable
 7. Provide a continuous piano hinged door, keyed locking latch and removable sub-panel. A single key shall be common to all control enclosures.
- B. Provide each DDC panel with a line filter, surge suppressor, electrical disconnect, control fuse, and control transformer. All sized and provided by the control system contractor.
- C. Provide power supplies located inside control enclosures shall be fully enclosed with external 24 Vac terminals, on/off control, equipment overcurrent protection, power indication, high/low voltage separation, and convenience 120VAC outlets.
- D. Provide insulated, modular, feed-through, clamp-style terminal blocks suitable for rail-mounting with end plates and partitions for the termination

of all field wiring in control enclosures. Field wiring to equipment with integral terminals and/or unitary equipment (i.e., VAV ATU"s, EF"s, &c.) shall not be required to have terminal blocks.

- E. Rail mounted terminal blocks shall be color coded to match the associated conductor colors adhering to BAS Department standard wire recognition coloring scheme as scheduled in section 2.11.

2.11 INTERCONNECTING WIRE & CABLE

- A. All wiring regardless of service and/or voltage shall comply the National Electric Code (NEC), and any/all applicable local codes and/or Authorities Having Jurisdiction (AHJ).
- B. Where required all wiring regardless of service and/or voltage shall be in conduit and shall be routed parallel to or at right angles with the structure, properly supported every six (6) feet at a minimum and installed in a workmanlike manner.
- C. Where permitted by all applicable specifications, local codes, NEC and AHJ; plenum-rated control cabling may be used where final application will be concealed but accessible. Where plenum-rated cable is allowed, it shall be routed parallel to or at right angles with the structure, properly supported every six (6) feet at a minimum and installed in a workmanlike manner.

2.12 GENERAL FIELD DEVICES

- A. All control relays shall be UL listed with contacts and coils rated for the application
 - 1. Relays used for in-line control start/stop of line voltage motors and shall have a current rating at least 150% full load amps.
- B. Control transformers shall be CSA and UL listed. Primary and secondary sides shall be fused in accordance with the NEC or shall be class 2 current limiting type. Transformers shall be sized such that the connected load is not greater than 80% of the transformer rated capacity.
- C. Voltage/Current to Pneumatic Transducer shall be non-bleed type 0-5V or 0-10V input and output pressure to match spring range of controlled device.
- D. Emergency shut-off switches shall be heavy duty, two-position push-pull, maintained contact, and illuminated 1-3/8 inch in diameter mushroom style push button switch. Provide hinged easy open protective clear cover to prevent accidental operation of switch.

2.13 ANALOG SENSORS

- A. Temperature Sensors: Temperature sensors are required leaving each element designed to change or vary a given supply temperature.
1. Temperature sensors shall be linear precision element Thermistor type.
 2. Single point duct temperature sensor shall consist of 316 stainless steel or platinum sensing element, junction box for wiring connections and gasket to prevent air leakage and vibration noise.
 3. Averaging duct temperature sensor shall consist of a copper or stainless steel averaging element, junction box for wiring connections and gasket to prevent air leakage or vibration noise.
 4. Liquid immersion temperature sensor shall include thermowell, sensor and connection head for wiring connections.
 5. Outside air temperature sensor shall consist of a single device sensor, ventilated non-metallic sun shield, utility box for terminations, and watertight gasket to prevent water seepage.
 6. Space temperature sensor shall consist of an element within a ventilated cover. Sensors located in mechanical areas, plenums, lobbies, or other public spaces shall be simple sensor with no setpoint adjustment.
 - a. Terminal Unit space temperature sensors shall be provided in accordance with the drawings at the locations indicated with the following options as indicated on drawings:
 - 1) Standard Wall-Mount Space Sensor
 - 2) Setpoint Adjustment Buttons (“+” & “-”)
 - 3) Override/Bypass
 - 4) Occupancy
 - 5) CO2
 - 6) RH
 - 7) Network Jack
 - b. All sensors not located in public spaces and associated with B-ASC or B-AAC that is located in normally inaccessible locations shall be the same.
 - c. Sensors shall be manually calibrated on site so that the wiring length does not detract from the sensor accuracy specified.
 7. Where necessary due to structural cavities, masonry walls, proximity to exterior openings, and unconditioned spaces an insulated mounting base shall prevent temperature of mounting location from affecting sensor temperature reading.
 8. Sensor guards shall protect sensor from damage in all public areas such as gymnasiums, classrooms, vestibules, restrooms, and corridors or as indicated at locations on the drawings.

9. Provide brass or stainless steel thermowells for each immersion type temperature sensor and switch.
- B. Wet Bulb temperature and humidity station shall be suitable for duct or outside mounting and consist of sensors, ventilated non-metallic sun shield, utility box for terminations, and watertight gasket to prevent water seepage.
- C. Pressure
1. Static Air Pressure Sensor shall have linear output voltage signal. Zero and span shall be field-adjustable. Tubing shall be connected to a Pitot tube or other pressure/airflow sensing device. Under no circumstances shall tubing pass through equipment housing or ductwork.
 2. Pitot tube probe shall be at least 4 inches allowing for internal duct insulation.
 3. Steam and water gauge pressure sensor shall include connections secured to a stainless steel diaphragm sensor with a gasketed, dust and watertight housing for remote mounting. steam devices and sensors shall incorporate a “pig-tail” in installation
 4. The differential pressure sensor for air applications shall provide a linear output voltage signal. The device shall be capable of over-pressurization to 10 PSI without a zero-shift and shall have a field adjustable zero and span. The assembly shall consist of pressure connections that secure pressure sensor to a housing for duct or remote mounting.
 5. Differential Pressure Sensor for water shall consist of a differential pressure tap secured to a stainless steel diaphragm and an electronic sensor enclosed in a gasketed, dust and watertight case.
 6. Five-valve manifold assembly shall be required to allow isolation and bypass of operating pressures from differential pressure sensor.
 2. Snubbers shall be required to prevent system pressure hammers and surges from being fully transmitted to the pressure sensor.
- D. Position
1. Damper Position indication consists of a potentiometer mounted in housing.
 - a. Damper Position End Switches shall employ mechanical position proving. Mercury style end switches shall not be accepted.
 2. Control valve Position indicator consists of a potentiometer mounted on the valve actuator.
 3. Float type level switch with SPDT snap acting contacts. Electronics shall be housed in a watertight enclosure.

4. Proximity Limit Switch shall be oil-tight, roller type, SPDT snap-acting switch with adjustable trim arm.

E. Flow

1. Electronic Air Flow Monitoring System (Type II): Other installations: Airflow monitoring systems shall be a solid state electronic device comprised of a thermistor based sensing grid and microprocessor based electronics panel for flow averaging, temperature compensation and signal transmission. [Ebtron,] [Paragon,] [Tek-Air] or [Air Monitor].
2. Water Flow In-Line Type: (For Pipe Sizes up to 1 ½ inches): In-line type flow sensor shall have a nonmagnetic spinning impeller. Sensor shall be Data Industrial Model 250B or equal.
3. Water Flow Insertion Type: (For Pipe Sizes 1 ½ inch to 10 inches): Provide a probe-mounted insertion type turbine sensor.

F. Gas

1. Refrigerant Vapor Detection System
 - a. Provide a refrigerant vapor detection system to meet ASHRAE 15-1994 and the applicable local codes. The system shall sample and monitor a minimum of two (2) remote sampling points per Chiller.
 - b. Provide the following accessories:
 - 1) One alarm relay for each level of alarm and one relay for flow failure or horn silence. Failure relay output that shall energize upon failure of monitor system operation. Failures include but are not limited to the following: low airflow through monitor, power circuit failure, and a saturated or absent sensor signal.
 - 2) Analog Output 4-20 mA or 0-5 VDC.
 - 3) Sample Pump shall be capable of drawing 0.25-1 liter/minute through 3/16 inch ID tubing for distances up to 100 ft.
 - 4) Enclosure type: NEMA 4X.
 - c. Sampling Tubing shall be Type L or hard drawn copper tubing.
 - d. The read out/control unit shall be wall mounted pursuant with contract drawings. Remote sampling points shall be located within the central plant area according to the drawings.
 - e. If the equipment and installation procedures are in accordance with these Specifications, products and services from Mine Safety Appliances Instruments Company (MSA) or approved equal will be acceptable.
 - f. The water chilling unit manufacturer shall provide refrigerant data.

2. Indoor Air Quality Sensors shall measure both VOCs and CO₂ in PPM. Sensors shall be mounted as indicated on the drawings.
3. Carbon Monoxide detection, where required on the contract drawings shall be a single or multi-channel, dual-level detectors, using solid-state sensors with 3-year minimum life, maximum 15-minute sensor replacement, suitable over a temperature range of 23°F to 130°F, calibrated for 50 and 100 ppm, with maximum 120-second response time to 100-ppm carbon monoxide.
4. Carbon Dioxide Sensor and Transmitter: Single detectors using solid-state infrared sensors; suitable over a temperature range of 23°F to 130°F (-5°C to 55° C) and calibrated for 0% to 2% of full range, with continuous or averaged reading, 4- to 20-mA output for wall mounting.
5. Occupancy Sensor: Passive infrared, with time delay, daylight sensor lockout, sensitivity control, and 180-degree field of view with vertical sensing adjustment; for flush mounting.
6. Oxygen Sensor and Transmitter: Single detectors using solid-state zircon cell sensing; suitable over a temperature range of -32°F to 1100°F (0°C to 593°C) and calibrated for 0% to 5%, with continuous or averaged reading, 4 to 20-mA output; for wall mounting.

2.14 SWITCHING SENSORS/THERMOSTATS

A. Temperature Thermostats

1. Provide one (1) Low Limit thermostat for each 20 sq/ft of coil face. Low limit thermostat shall be of the vapor pressure remote element, manual reset type with adjustable set point. The device shall respond to the lowest temperature to which any 1 foot of the element is exposed. Capillary sensing tubing serpentine vertically across the discharge face of the coil, and be supported firmly by mechanical clips.
 - a. Low Limit thermostats shall be DPDT with a minimum of one (1) NO contact and one (1) NC contact
2. High limit thermostat shall be manual reset type. Sensing element shall be bimetal.
3. Capillary Type Thermostats shall have liquid or vapor-filled thermal system consisting of stainless steel or copper sensing element, connected to a fully compensating capillary tube, and operating bellows or spiral.
4. Surface Mounted Thermostats shall be line voltage on-off type suitable for strapped mounting to pipe.
5. Wall Mounted Thermostats shall be line voltage on-off type suitable for wall mounting.

2.15 AUTOMATIC CONTROL VALVES

- A. General Requirements: Honeywell is a preferred product.
1. Valves shall be provided with metallic linkage.
 2. Unless otherwise indicated, all valves shall have a minimum range-ability of 50:1. All valves shall be guaranteed to have not more than 1% leakage of design flow rate at the pump shut-off pressure
 3. Globe valves shall have replaceable seats.
 4. Valves shall be quiet in operation.
 5. Unless otherwise indicated, minimum body rating for any valve is 125 psi and maximum fluid temperature of 177 deg C (350 deg F).
 6. Valves shall have stainless-steel stems and stuffing boxes with extended necks to clear the piping insulation.
 7. Valve bodies shall meet or exceed pressure and temperature class rating based upon design operating temperature and 150% design operating pressure.
 8. Unless otherwise indicated two and three-way Automatic Control Valves shall be globe-style bodies and comply with the following selection criteria:
 - a. Globe-style valve minimum body rating for any valve is 125 psi and maximum fluid temperature of 120°C (250°F).
 - b. Bodies for valves 2" and smaller shall be brass or bronze with NPT threaded connections, and shall be rated for ANSI Class 250 working pressure. Spring-loaded packing shall be required to protect against leakage at the stem.
 - c. Bodies for valves 2½" to 3" shall be brass, bronze or iron with flanged connections and shall be rated for ANSI Class 125 working pressure. Packing shall protect against leakage at the stem.
 - d. Bodies for valves 3" to 6" shall be iron, cast iron or cast steel with flanged connections and shall be rated for ANSI Class 125 working pressure. Packing shall protect against leakage at the stem.
 - e. For modulating applications, valve Cv (Kv) shall be within 100% to 125% of the design Cv (Kv)
 - f. For two-position applications, valve Cv (Kv) shall be the largest available for the valve size
 - g. Valve and actuator combination shall be Normally-Open (NO) or Normally-Closed (NC) as shown
 9. Where specified ball-style body Automatic Control Valves shall adhere to the following:

- a. Ball-style valve minimum body rating for any valve is 125 psi and maximum fluid temperature of 100C (212F).
 - b. Bodies for valves 2" and smaller shall be forged brass body with nickel plating, NPT threaded connections
 - c. All control ball valves shall be furnished with chrome plated bronze ball and stainless steel stem and fiberglass reinforced Teflon seats and seals. The valves shall have a blowout proof stem design.
 - d. The stem packing shall be 2 O-rings designed for modulating service and requiring no maintenance.
 - e. All control ball valves shall feature characterized flow guides when used for modulating applications
10. 10. Where specified butterfly-style body Automatic Control Valves shall adhere to the following:
- a. Unless otherwise indicated, butterfly valves shall have a minimum range ability of 10:1. All valves shall be guaranteed to have not more than 1% leakage of design flow rate at the pump shut-off pressure
 - b. Butterfly-style valve minimum body rating for any valve is 125 psi and maximum fluid temperature of 120 deg. C (250 deg.F).
 - c. Bodies for valves 3" to 12" shall be fully-lugged cast iron body
 - d. Flanges shall meet all ANSI 125 and ANSI 150 standards.
 - e. The stem shall be one piece stainless.
 - f. The 416 stainless shaft shall be supported at three locations with PTFE bushings for positive shaft alignment.
 - g. The seat shall be EPDM; Phenolic backed, non-collapsible, and easy to replace.
 - h. The disc shall be aluminum bronze to provide bubble-tight close off in either direction.
 - i. Valve shall have a long stem design to accommodate 2 inches insulation.
11. Valves for Chilled Water (CHW) and Glycol (GCHW) service shall adhere to the following:
- a. All internal trim regardless of body type shall be Type 316 Stainless Steel. Valves 3" and larger shall be butterfly valves.
12. Valves for Heating Hot Water (HHW) service shall adhere to the following:
- a. Valves for HHW service between 210°F (99°C) and 250° (120°C) shall have all internal trim (including seats, rings, modulating plugs and springs) of Type 316 Stainless Steel
 - b. Valves for HHW service below 210° (99°) shall have all internal trim (including seats, rings, modulating plugs and springs) of Brass, Bronze or Type 316 Stainless Steel
 - c. Non-metallic valve components shall be suitable for a minimum continuous operating temperature of 250° (120°

and/or 50° (10°C) above the system design temperature, whichever is higher

2.16 VALVE ACTUATORS: Honeywell and Belimo are preferred products.

- A. Actuators used in wet conditions and/or in or near outdoor air streams shall have NEMA 2 housings.
- B. Valve Actuators shall be modulating, with feedback signal, two-position and spring return fail safe as called out in the control sequence of operation or indicated on the drawings. All modulating valves shall be positive positioning, and respond to a 0-10VDC or 2-10 VDC with the exception that terminal unit zone valves may use an actuator that responds to a floating or tri-state with feedback signal.
- C. All control valves shall have a visual position indicator.
- D. All non-spring return actuators shall have an external clutch/manual gear release to allow manual positioning of the valve when the actuator is not powered. Spring return actuators with more than 60-in-LB torque capacity shall have a manual crank for this purpose. In lieu of a manual positioning device, it will be acceptable for the contractor to provide a full line size bypass around the control valve. Three bypass shut off valves shall be provided to allow the control valve to be isolated while the open stop valve in the bypass allows flow around the control valve.
- E. All modulating actuators shall have an external, built-in switch to allow the reversing of direction of rotation.
- F. Any mechanical equipment with direct introduction of outside air shall require fail-safe spring return valve actuators. Terminal equipment (VAV ATU, &c.) without direct introduction of outside air are permitted to have actuators that maintain their last commanded position when power is lost to the actuator. Equipment isolation and differential or temperature pressure bypass valves shall not be required to be provided with a spring return actuator provided that a failure of the valve to return to its "fail-safe" position will not incur damage to property or the system it serves.

2.17 AUTOMATIC CONTROL DAMPERS

- A. All Automatic Control Dampers provided as a part of this Specification shall bear the AMCA Seal as an indication that they comply with all requirements of the AMCA Certified Ratings Programs.
- B. A single damper section shall have blades that do not exceed 48" in length and shall be no higher than 72". Damper blades shall not exceed 8" in width. Applications requiring larger dampers shall be achieved by combining single damper sections.
- C. Frame construction shall be a minimum of #14 gauge galvanized steel formed into channels and welded, 14 gauge galvanized roll-formed steel or extruded aluminum at a minimum 4½" by 1" by 0.125" thick.
- D. Blades and baffles shall be fabricated of minimum 16 gauge steel with corrosion resistant galvanized finish or extruded aluminum 6" by 0.08".

- E. All dampers shall be provided with nylon, cyclopy or oilite bearings, stainless steel or elastomeric side seals, and zinc plated hardware as standard.
- F. Axles shall be a minimum of ½" diameter and be locked to blade with rivets or welded.
- G. Dampers shall be made up of 6" or 8" blades or combination of the two. Dampers shall have a minimum of four brakes running the entire length. Silicone or polyurethane blade edging shall be furnished on all dampers.
- H. Maximum leakage rate through any 48 inches by 48 inches closed damper in any application shall not exceed 10.0 cfm per sq. ft. of damper face area at 4 inches of water pressure differential and a maximum closing torque of 4 inch-lbs/sq. ft. of damper face area. Damper leakage ratings shall be certified in accordance with AMCA Standard 500-D.
- I. Blades mounted vertically shall be supported by thrust bearings.
- J. All Automatic Control Dampers in modulating applications shall be sized so as to achieve linear airflow characteristics.
- K. Flow Control Application Dampers (Opposed Blade Operational Style)
 - 1. Opposed Blade Automatic Flow Control Dampers shall be required as indicated on the drawings for:
 - a. All mixing, volume throttling, airflow control, &c. applications installed in Outdoor, Relief, Exhaust, and/or Supply airstreams.
 - b. Any application upstream of critical components
 - c. Ducted Outlets
 - d. Automatic Flow Control Dampers specifically indicated to be provided by Mechanical Equipment manufacturer and/or as a component of packaged equipment shall not be provided by the Contractor.
 - 2. To minimize leakage, blade edges shall be interlocked and blade seals shall be compressible at all contact points. Channel frames shall also be provided with jamb seals.
 - 3. All Outdoor Air Damper components shall be suitable for applications operating in the temperature range of -40°F (-4 °C) to 167 °F (75°C)
 - 4. Damper shall be rated for a minimum velocity of 2000 ft/min
- L. Mechanical Ventilation, Miscellaneous Utility Dampers (Parallel Blade Operational Style)
 - 1. Parallel Blade Automatic Flow Control Dampers shall be permitted as indicated on the drawings for applications not requiring Opposed Blade operation pursuant with that specification section and for:
 - a. Two-position (fully-open or fully-closed) applications
 - b. Applications where the damper constitutes the primary source of total system pressure loss

- c. Applications where greater control is required at the upper end of airstream volume operating range
 - d. Mechanical Space ventilation and exhaust, combustion intake & exhaust, &c.
 2. Shall comply with AMCA 500-D Class 4 and shall not leak in excess of 80cfm per sq/ft at 4inwc static pressure when closed.
 3. Damper shall be rated for a minimum velocity of 1500 ft/min
- M. Operating Linkages and Damper Accessories
 1. All operating linkages and/or damper accessories required for installation and application in accordance with specification design intent and manufacturer's installation procedures shall be provided
 2. Operating linkages provided external to dampers (crank arms, connecting rods, shaft extensions, &c.) for transmitting motion from the actuator/operator to dampers shall be designed as to functionally operate a load equal to or in excess of 300% of the maximum required operating force for the damper.
 3. Crank arms and connecting rods shall be adjustable. Linkages shall be brass, bronze, zinc-coated steel, or stainless steel.
 4. Adjustments of Crank Arms shall control the position of the damper
 5. Use of Operating Linkages external to damper drive shaft shall neither delay nor impede operation of the damper in a manner of performance less than a direct-coupled damper actuator. Operating linkages shall not under any circumstances be permitted to flex, warp, shift &c. under normal operation of connected damper sections.

2.18 AUTOMATIC CONTROL DAMPER ACTUATORS: Belimo is a preferred product

- A. Control damper actuators shall be electronic direct-coupled type. Actuators shall have a means for reversing drive direction and a manual override accessible at the front cover.
- B. Single bolt or setscrew type fasteners are not acceptable.
- C. The actuator shall have electronic overload or digital rotation sensing circuitry. Mechanical end switches or magnetic clutch to deactivate the actuator at the end of rotation are not acceptable.
- D. For spring return fail-safe applications, an internal mechanical spring return mechanism shall be built into the actuator housing. Non-mechanical forms of fail-safe operation are not acceptable.
- E. All non-spring return actuators shall have an external manual clutch/gear release to allow manual positioning of the damper when the actuator is not powered. Spring return actuators with more than 60 in-LB torque capacity shall have a manual crank for this purpose.

PART 3 – EXECUTION

3.0 GENERAL

- A. BAS component locations are the responsibility of the System Contractor. All control system components shall be installed in locations as required to properly sense the controlled medium.
- B. BAS Installation shall be performed by professionals in a workmanlike manner and in compliance with the National Electric Code (NEC), and any/all applicable local codes and/or Authorities Having Jurisdiction (AHJ) and the following:
 - 1. Complete BAS installation including all DDC Devices, Enclosures, wiring, equipment, control devices and sensors shall be installed in accordance with the manufacturers' recommended installation procedures and as specified.
 - 2. All control devices are to be provided and installed with all required gaskets, seals, flanges, connection enclosures, thermal compounds, insulation, piping, fittings and valves as required for design operation, isolation, equalization, purging and calibration.
 - 4. Strap-on control devices shall not be permitted except as explicitly called out.
 - 5. All control devices mounted outdoors shall be protected by a weather-shield, integral outdoor enclosure, &c. from ambient elements in such a manner as to not impede design functionality and/or sensing.
 - 6. BAS installation shall be such that it provides sufficient clearance for system maintenance by maintaining sufficient access for equipment, device and/or component service, calibration, removal, repair or replacement.
 - 7. BAS installation shall not interfere with required clearance for mechanical and/or electrical equipment maintenance.
 - 8. Penetrations through and mounting holes in the building exterior associated with the BAS installation shall be sealed and made water-tight.
 - 9. Dielectric isolation shall be provided where dissimilar metals are used in installation for connection and support.
 - 10. Installation, wiring and material shall be protected from damage by and during BAS installation by BAS Contractor.
- C. The Contractor shall be responsible for his/her work and equipment until finally inspected, tested and accepted. The Contractor shall protect his/her work against theft or damage, and shall carefully store material and equipment received on site that is not immediately installed.
- D. After completion of installation, calibrate and commission all components provided as part of the Control System and demonstrate proper sequence

of operation in compliance with the specifications. BAS components not operating correctly shall be field corrected or replaced.

3.1 DIRECT AND WEB-ENABLED BAS APPLICATION SOFTWARE

- A. At time of acceptance all operating system, Third party and Control System Application software shall be at least the latest official release version available.
- B. Software programs are described to their general intent. It is recognized that Networked System manufacturer's software differ; however, the Application software provided shall incorporate the features described fully implemented and optimized to provide the sequences described, minimize energy consumption and prolong equipment life.
- C. The following standard naming convention shall be utilized for the naming of BACnet Devices on the BACnet internetwork.
 - 1. The convention for object names must adhere to the standards set by BAS Department.
- E. When programming the system BACnet addressing rules will be strictly adhered to. All addressing strategies will have to be approved BAS Department prior to configuring any LAN types.
- F. All analog and binary values shall be programmed with appropriate alarms.
- G. Except as specified otherwise, throttling ranges, proportional bands, and switching differentials shall be centered on the associated set point.
- H. All set points unless otherwise indicated are adjustable and shall be programmable for all control loops.
- I. Each control loop and/or interlock(s) for all mechanical system including terminal unit systems shall be programmed with a control loop specific graphical trend to trend all values associated with each specific control loop or system interlock.
- J. Where any sequence or occupancy schedule calls for more than one motorized unit to start simultaneously, the system start commands shall be staggered by 60-second (adj.) intervals to minimize inrush current.
- K. Scheduling shall be developed for each mechanical system. Final schedules shall be coordinated with BAS Department prior to system commissioning. Until indicated otherwise the following schedule shall be used:
 - 1. Occupied: Monday – Friday/06:00 – 20:00
 - 2. Unoccupied: All other times and all statutory holidays.
- K. Optimal start/stop programs shall be applied to all regularly scheduled mechanical and electrical systems.
- L. At a minimum, trend log/historical data shall be implemented for every hardware point on the system. Additionally all software (virtual) points used as setpoints shall be trended. Point trends shall be grouped into logically interrelated points for individual mechanical and building

systems. Initial set-up shall be to log values once every 5 minutes. Refer to points list on electrical and mechanical drawings for components requirements.

- M. B-OWS Graphical User Interface (GUI) must be approved by BAS Department and shall incorporate at a minimum the following:
 - 1. At a minimum, all physical hardware, sensors, control devices and set points shall be visible on a B-OWS in graphical form.
 - 2. All mechanical systems shall have a programmed real time color graphic for primary graphical user interface
 - 3. Individual floor plan graphics will be programmed for each floor or area of the building. All space sensors will be visible on floor plan graphics and system graphic.
- N. The system shall observe the following command priorities (from highest to lowest):
 - 1. Smoke Control and Life Safety (BACnet Object Priority Array Level 1 & 2)
 - 2. Manual Operator Command (BACnet Object Priority Array Level 8)
 - 3. Energy Management (BACnet Object Priority Array Level 9)
 - 4. Normal Automatic Control (BACnet Object Priority Array Level 10)

3.2 DIRECT AND WEB-ENABLED SERVER, (B-OWS) HARDWARE

- A. Provide as specified for each PC-Based B-OWS
- B. Assemble server components in a configuration that allows easy operator access to all necessary components from one position. Locate components as required by the BAS Department
- C. Connect to LAN as required. If LAN/WAN is not dedicated to the BACnet network then Contractor shall develop a LAN/WAN System Architecture diagram denoting server B-OWS relative to other nodes on its segment of the LAN/WAN. This diagram shall be submitted at a minimum as a part of the As-Built and O&M Documentation.
- D. Provide sufficient permanent and removable storage drives for 25% free memory after provision for all operating system, Third party and Control System Application software, all fully configured point databases, storage/back-up of all B-BC, B-AAC and B-ASC application programming, all graphic files, all user-defined reports and a three year archive of all trend and historical data described in this specification.
- E. Provide sufficient RAM to meet system performance requirements.

3.3 LOCAL AREA NETWORKS (LAN)

- A. The control system shall be configured so that any individual network shall not exceed 80% of its total design network capacity. The system shall have a reserve of 20% network capacity.

- B. Where possible all Hubs, Switches, Half and Full Routers will be from the same manufacturer. Switches will be all “Store and Forward” type and will be installed in accordance with manufacturer specifications.
- C. Inverted Networks will not be allowed. Networks with minimum packet sizes smaller than those it connects to will not interconnect networks with larger minimum packet sizes. If three (3) or more networks are interconnected the network with the highest speed and minimum packet size will be utilized to interconnect the slower networks.
- D. Where BACnet/IP LAN type is used, non-TCP/IP devices shall not be used. Where BACnet/IP is provided it shall comply with all Addendum to ANSI/ASHRAE 135-1995 BACnet/IP.

3.4 BACnet PROTOCOL VERIFICATION SOFTWARE

- A. Demonstrate exclusive communication utilizing the BACnet Protocol on all segments of the BACnet network.

3.5 BUILDING CONTROLLER (B-BC)

- A. Provide as required to meet performance requirements of the system with a 20% increase in connected B-AAC and B-ASC on any individual network. Provide a dedicated B-BC for all project specific equipment requiring this controller type.
- B. Locate strategically such that B-BC locations are as equally distributed throughout the project as possible.

3.6 ADVANCED APPLICATION CONTROLLERS (B-AAC)

- A. Provide a dedicated B-AAC for each medium-sized mechanical system.
- B. All points used for a single mechanical system shall be connected to the same B-AAC. Points used for control loop reset based on outside air, or space/zone temperature, or extremely remote differential pressure sensors on slow acting control loops are exempt from this requirement.
- C. Provide spare additional I/O such that future use of spare capacity shall require providing only the field device, field wiring, point database definition and operational sequence programming changes as required. Additional point modules may be required to implement use of these spare points.
 - 1. Provide at least one (1) spare universal input and one (1) spare universal output or 15% spare I/O of the total capacity of each B-AAC whichever is greater.
 - 2. If B-AAC I/O is not universal then provide at least one (1) spare analog input, one (1) spare digital input, one (1) spare analog output and one (1) spare digital output or 15% spare I/O of the total capacity for each point type of each B-AAC whichever is greater.

3.7 APPLICATION SPECIFIC CONTROLLERS (B-ASC)

- A. Provide a dedicated B-ASC for each Terminal Unit Mechanical Device on the project, including VAV and Fan Powered Terminal Units, Unit Heaters, and Individual Fans. Terminal Units specifically called out in the sequence of operation, as “Non-DDC” shall be excluded from this requirement.
- B. All points used for a single Terminal Unit Mechanical Device shall be connected to a dedicated B-ASC. Points used for control loop reset based on outside air, or space/zone temperature, or extremely remote differential pressure sensors on slow acting control loops are exempt from this requirement.
- C. VAV ATU and FP-VAV ATU Controllers
 - 1. Provide networked B-ASC for each VAV ATU and FP-VAV ATU consisting of a controller, damper actuator, and velocity transducer.
 - 3. The ATU manufacturer shall provide a transformer, and factory wire the B-ASC and other unit mounted control devices such as actuators.
 - 4. The ATU shall be provided with multi-point averaging type flow sensor factory piped to the velocity transducer.
 - 5. Provide a networked communicating room sensor for each terminal unit that shall be field mounted and wired. Networked communicating room sensors shall be capable of performing airflow calibration and TAB functions without additional hardware or software.
 - 6. Where indicated on the drawings and/or in one (1) location per floor, wing, building or section (whichever is more frequent), install networked communicating room sensor enabled to provide BACnet network connection to Service Tool and/or Portable B-OWS.

3.8 LOCAL SYSTEM NETWORK INTERFACE

- A. At a minimum the Portable B-OWS shall be able to connect to the BACnet Internetwork within each mechanical equipment space within the project. For manufacturers systems that do not allow direct portable B-OWS connections to B-AAC and B-ASC this may require that a higher level LAN be routed to each mechanical equipment space with a jack.

3.9 TEMPERATURE CONTROL PANELS (TCP), ENCLOSURES & SUB-PANELS

- A. All system components not designed for or required to be field installed shall be mounted in a control enclosure. Those components shall be sub panel mounted except components that are mounted on the panel face.

Provide on/off power switch with over-current protection for control power sources in each local enclosure.

- B. All control enclosures shall be located as shown on the drawings and wherever possible (or where not indicated on the drawings) so that visual observation and adjustment can be accomplished while standing flatfooted on the floor in a convenient location adjacent to the equipment served. Install all equipment in readily accessible location as defined by Chapter 1 Article 100 Part A of the NEC.
- C. Label all control system components.
- D. A copy of the "As-built" application engineering for the system served shall be laminated in clear plastic, shall be legible and suspended within enclosure.
- E. All B-BC shall be mounted in an enclosure.

3.10 INTERCONNECTING WIRING AND CABLING

- A. General
 - 1. It shall be the System Contractor's responsibility to provide all wiring required for a complete Control System.
 - 2. Control system wiring and cabling installed for this project shall be performed by professionals in a workmanlike manner and in accordance with the National Electric Code (NEC), and any/all applicable local codes and/or Authorities Having Jurisdiction (AHJ) and shall include but may not be limited to the following:
 - a. All power wiring required not indicated on the electrical plans and specifications.
 - b. Power to all actuators and sensors.
 - c. Provide all wiring and cabling for network communications except for owner provided LAN"s/WAN"s.
 - d. All sensor and control device input and output wiring.
 - e. All interconnecting cabling between and amongst network devices, PCs printers, modems, etc...
 - f. Interlock wiring between devices, and between motor starters.
 - g. All other necessary wiring for fully complete and functional system as specified.
 - h. Install piping, wiring/cabling routed parallel to or at right angles with the structure, properly supported every six (6) feet at a minimum and installed in a workmanlike manner.
 - 3. Maximum allowable voltage for control wiring shall be 120-volts.
 - 4. All wiring shall be installed as continuous links. Any required splices shall be made only within an approved junction box or other approved protective device with a maximum fill of 50%.

- a. BACnet network cabling shall not be field spliced
 5. Verify integrity of all wiring to ensure continuity and freedom from shorts and grounds.
 6. This Contractor shall terminate all control and/or interlock wiring and shall maintain updated (as-built) wiring diagrams with terminations identified at the job site.
- B. Power Wiring and Cabling
1. Where required, power wiring for the control system shall be from circuits on emergency power panels. At a minimum; B-BC"s, the B-OWS and any other DDC devices and control devices connected to and/or responsible for system critical equipment shall be powered from circuits on emergency power panels.
 2. Power wiring for all enclosures and equipment, including branch circuit wiring from circuit breaker panels shall be the responsibility of the System Contractor unless specifically indicated in the specifications.
 3. All B-OWS equipment shall be served from isolated ground receptacles via UPS by dedicated branch circuits.
 4. All other enclosures, sensor and control devices shall be fed from separate circuits in the electrical distribution panels and shall not be served from the typical floor receptacle or lighting circuits.
- C. Network Wiring and Cabling
1. Network installation shall strictly adhere to the manufacturer's networking installation instructions and procedures.
 2. All communications wire shall be externally identified as "Building Energy Management System Network" at least once every five feet.
 3. Network installation shall conform to standards for the LAN types and cabling types selected. Specific network rules inherent to the ANSI/AHRAE Standard 135-1995, BACnet will be followed. Those include but are not limited to:
 - a. Only one path can exist from any BACnet device to another.
 - b. Each BACnet device connected to an internetwork LAN must have a unique device instance (0 - 4,194,303).
 - c. Each internetwork LAN must have a unique Network Number (1 - 65,545).
 - d. Wire type used for MSTP, RS-485 twisted pair communications must be balanced twisted pair with 100 to 120 Ohms Characteristic Impedance. The wire shall be less than 30 pF per foot, and preferred 22AWG or lower. A shielded wire shall be included for ground connection.

4. Primary LAN Network wire and cable shall be run separately from all other wiring.
5. Other LAN Network wire and cabling shall be installed separate from any wiring over thirty (30) volts.
6. All communications shielding shall be grounded as per Networked System manufacturer's recommendations.

D. Installation

1. Except in mechanical and electrical spaces where other conduits or piping is exposed, conceal wiring and cabling as much as possible and install and comply with the requirements of the National Electric Code (NEC), and any/all applicable local codes and/or Authorities Having Jurisdiction (AHJ).
2. All wiring and cabling installed in and/or routed through TCP, Enclosures and Sub-Panels shall regardless of voltage and/or service be fastened securely using cable ties, non-metallic wiring duct and/or other standard industry wiring management means and methods in a workmanlike manner parallel and/or perpendicular with enclosure.
3. All TCP, Enclosures, Sub-Panels, Junction Boxes, Pull Boxes, Troughs, Trays, Raceways, Conduits, &c. shall not exceed 70% maximum conductor fill.
4. Each Input/Output device shall be controlled from a dedicated 2-pair conductor.
5. Each Input/Output device requiring power shall have a dedicated power wire run to the control enclosure and shall be terminated to a dedicated terminal strip.
6. All wire with controls enclosure shall be neat and suitably bundled and contained in Panduit wire duct or equivalent.
7. All wiring will be suitably identified by thermal print heat shrink tubing at controller and Input/Output device.

3.11 ANALOG SENSORS

A. Temperature

1. All wires attached to sensors shall be air sealed in their conduits or in the wall to stop air transmitted from other areas affecting sensor readings.
2. Install and properly support all enclosures and sensing elements as much as possible in the center of duct cross section and in straight duct runs. In condensing environments use stainless steel flanges to support sensing elements.

3. Sensors mounted on air ducts having exterior insulation shall be provided with handy-box mounting with insulating material firmly fitted around handy-box.
4. Sensors for mixed air and outdoor air streams greater than 6 square feet or 24" in either direction shall be averaging type. Provide a minimum of 1 linear foot of sensor per 4 square feet of duct area or equal to duct width where installed, whichever is longer. Averaging sensing tubing shall serpentine vertically across airstream and be supported firmly by mechanical clips.
5. Temperature sensors installed in piping or tanks shall be in separable thermowells. Sensors shall be inserted into thermowells with conductive paste. Assembly shall allow removal of sensor without loss of fluid.
6. At a minimum one outside air temperature sensor shall be installed. It shall be mounted outside on a northern exposure as high as serviceable on the building. The sensor shall be mounted within a ventilated enclosure to shield the sensor from the effects of the sun. The sensor location shall be selected such that it may not be affected by artificial and/or mechanical airstreams (i.e., building exhaust, building relief, etc...).
7. Terminal Unit Sensors shall be provided one per terminal unit device with the exception of large non-partitioned areas served by multiple terminal units.
 - a. They shall be wall mounted in the space served 60" above finished floor and located as shown on drawings.
 - b. Provide a minimum of 16" of coiled temperature sensor control wiring for equipment with space sensor not located on the Drawings.
 - c. In all areas where terminal unit sensor locations are not known at the time of building startup, sensors shall be hung approximately 24 inches from the ceiling in the area of the controlled zone and connected. Control wiring shall be neatly coiled and attached to ceiling grid. Sensors located in service corridors where subject to regular damage shall be mounted 84" above finished floor.
8. Zone temperature sensors shall not be located on perimeter walls. Where explicitly indicated on drawings to do so and/or in locations near exterior walls and/or subject to drafts sensors shall have insulated mounting bases to prevent false room temperature readings.
9. Where wall sensors are mounted in an area subject to damage provide suitable protective guard.
10. Where wall sensors are mounted in public spaces with adjustable set points provide suitable security guard.

11. Provide matched temperature sensors for differential temperature measurement. Differential accuracy shall be within 0.1°C (0.2°F).
- B. Wet Bulb
1. For outside air mount same as outside air temperature sensor.
 2. For duct mounting execute same as duct mounted temperature sensor.
- C. Pressure
1. Orient static pressure sensing taps faced directly down-stream in the airflow so as to eliminate velocity pressure effects. Locate pressure transducers within 50" of sensing point and use tubing sized such as to prevent signal phase lag.
 - a. Final location of static/differential pressure sensing taps shall be pursuant with Contract Documents and as indicated on drawings. Where not explicitly indicated on drawings, pressure sensing taps shall be located as follows:
 - 1) Duct static pressure control sensor tap shall be located 2/3 distance from the Air Handling Unit of the total duct length in a straight section of ductwork with a minimum of four (4) duct diameters in both directions.
 - 2) Positive static high-pressure safety cut-outs shall be located at Air Handling Unit immediately downstream of fan section.
 - 3) Mixed-Air static and/or differential sensor tap shall be located in mixing box section.
 - 4) Negative static pressure safety cut-outs shall be located immediately upstream of fan section.
 - 5) Filter differential pressure taps shall be installed on both filter inlet and outlet.
 - b. Mount air differential pressure taps so that true differential is sensed.
 2. Water gauge taps shall include snubbers and isolation valves
 3. Water differential pressure sensors shall be piped through a five-valve bypass assembly with snubbers
- D. Position
1. Mount damper position indicator onto damper blade and out of air stream as much as possible.
- E. Flow
1. Mount airflow measuring station differential pressure sensor outside of fan casing.

3.12 SWITCHING SENSOS

- A. Temperature
 - 1. Wherever mixed or entering air temperatures are below 35 deg F (1.4°C), the sensing tube shall be installed across the leaving face of the first coil in the airstream. The low-temperature thermostat shall be arranged to stop the units supply fan and its associated return air fan should the temperature at any point along the sensing element fall below 35°F (1.4°C). Provide a minimum of one foot of sensing element for each square foot of coil face area. In condensing environments use stainless steel sensing element and capillary mounting clips.
- B. Differential Pressure
 - 1. Differential pressure type switches shall be installed as per differential pressure sensors and shall provide a maximum switching differential of 10% of the sensed operating range for the application at minimum and maximum designed flow rates. Set point shall be selected to operate at midpoint of span.
 - 2. Paddle type water flow switch shall be used to verify flow through chillers, other applications for operational, safety or other critical control interlock, on-off flow status monitoring, and at locations as indicated on the Drawings. Provide with NEMA 4 enclosure when installed in a condensing environment.
 - 3. Differential pressure type water flow switch shall be used for on-off flow status monitoring of equipment and to position secondary chilled water loop return control valves. The sensing tubes shall be installed between the equipment and the nearest service valves.
- C. Position
 - 1. Mount damper blade end switch in such a manner that it is located out of the airstream as much as possible. End switch as installed shall be repeatable to within a range of 5 degrees. Under no circumstances shall mercury-style end switches be permitted.
- D. Direct drive motors are permitted to utilize a current switch without an adjustable set point.

3.13 AUTOMATIC CONTROL VALVES

- A. Flow characteristics shall be as follows:
 - 1. Flow type for 2-way valves shall be equal percentage, except for terminal unit zone valves, and differential pressure control applications.
 - 2. Flow type for 3-way valves shall be linear, except for terminal unit zone and ball valves.

3. Terminal unit zone, differential pressure applications shall be linear flow characteristic.
- B. Two-way, control valves shall be provided for all convectors, fin radiation, horizontal unit heaters, unit ventilators, and all steam applications.
- C. Two-way control valves shall be provided for all cabinet unit heaters, duct coils, and any other locations noted on drawings.
- D. Two-way valves shall not be placed on branch or main hydronic circuits where these valves will cause a "dead-head" pumping condition. Three-way valves shall be used to avoid this condition.
- E. Valve actuator and trim shall be furnished to provide the following minimum close-off pressure ratings:
 1. Two-Way liquid valves shall be 150% of total system (pump) head.
 2. Three-Way liquid valves shall be 300% of pressure differential between ports A and B at design flow or 100% of total system (pump) head, whichever is greater.
- F. Water Sizing Criteria at full flow:
 1. Two-position service shall be line size.
 2. Two-way or three-way modulating service shall have a maximum pressure drop not to exceed 4 PSI.
 3. Differential pressure modulating service shall have a maximum pressure drop not to exceed 12 PSI.

3.14 VALVE ACTUATORS

- A. When an air handling unit or major piece of mechanical equipment is not in operation, control devices shall remain in their "off" positions. Fail-safe positions shall be the same and defined as follows:

<u>DEVICES</u>	<u>OFF/FAIL-SAFE POSITION</u>
1. HHW Coil Valves:	As-is position to Coil/Equipment
2. CHW Coil Valves:	As-is position to Coil/Equipment

3.15 DAMPER ACTUATORS

- A. Check operation of damper/actuator combination to confirm that actuator modulates damper smoothly throughout stroke to both open and closed positions.
- B. Spring return actuators shall be provided except as follows.
 1. Terminal or unitary equipment without direct introduction of outside air are permitted to have actuators that maintain their last commanded position when power is lost.

2. Damper actuator shall not be required to be provided with spring return provided that it is not directly connected to Outdoor Air and a failure of the damper to return to its “normal” position will not incur damage to the system/space it serves.
- C. Modulating actuators shall be provided for terminal unit mechanical devices may use an actuator that responds to a floating or tri-state signal.
- D. Minimum torque and power output requirements of actuators shall not be less than 1.2 times required design load.
- E. When an air handling unit or major piece of mechanical equipment is not in operation, control damper shall remain in their “off” positions. Fail-safe positions shall be the same and defined as follows

<u>DEVICES</u>	<u>OFF/FAIL-SAFE POSITION</u>
1. Outdoor Air Dampers:	Closed
2. Return Air Dampers:	Open
3. Exhaust/Relief Air Dampers:	Closed

**Fulton County
Information Technology (IT)
Requirements & Standards**

Last Revised: February 2012



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1. Information Technology Assessment

The purpose of this questionnaire is to provide Fulton County a high-level overview of the vendor's proposed information technology solution and the environment that will be required to support the solution. Vendors are required to respond to all questions listed below. If a question does not apply to the proposed solution, the vendor must provide an explanation.

1. Will this solution be hosted by the vendor (i.e. no hardware will be installed within Fulton County's firewall or DMZ)?
2. If you answered "NO" above, please provide details on all hardware and connectivity requirements.
3. Do you have an infrastructure diagram that outlines basic system architecture? If yes, please provide.
4. Please provide a high-level overview of the software components of the proposed solution.
5. Approximately how many servers will be required for the proposed solution? List the function of each server.
6. How many environments do you recommend for the proposed solution?

7. Can the application be implemented in a virtual environment (including web and database servers)?

8. Please explain the solutions data storage requirements.

9. Is the proposed solution a web-based application or client/server?

10. Will the proposed solution store, process, or access any sensitive data (e.g. PII, credit card numbers, social security numbers, HIPAA, etc.)? If so, how will you ensure the security of data, and transmission of such data?

The following space is provided for vendor's to detail any instances where there proposed solution is not in compliance with the following IT Requirements & Standards.

2. IT Requirements and Standards

2.1. Overview and Objectives

The Fulton County Department of Information Technology (DoIT) is a centralized IT Department supporting all departments within Fulton County. DoIT is empowered through Fulton County Code, Policies and Procedures as the agency responsible for establishing, updating, enforcing, and retiring information technology (hardware, software and supporting infrastructure) requirements as well as its standards. IT requirements and standards ensure alignment, consistency, and modernization in the selection and maintenance of information systems used within the County.

The objective in providing vendors IT requirements & standards are threefold:

1. In order to ensure that IT acquisitions integrate well into Fulton's technology environment facilitating its ability to carry out the business of Fulton County.
2. In order to identify and manage the risk, security exposure, or liability associated with an IT acquisition.
3. As well as, ensuring Fulton County achieves the maximum value from any information technology investment.

Any product solution that relies on the IT system's enterprise infrastructure, connects to the IT network, or depends upon DoIT support must fully conform to the requirements and standards identified in this document. The requirements and standards provided do not represent a comprehensive view of all the products in use across the County. However, the intent of the list is to convey the primary standards for the major solutions supported by DoIT and/or delivered with IT resources. The County's Chief Information Officer (CIO), in compliance with County Policy 600-61, must approve all procurements comprised of IT components.

2.2. Hardware, Software, Infrastructure Standards

Compliance is mandatory for all hardware and software solutions implemented as defined within requirements and standards guidelines. Proposers must provide a complete understanding of their respective solutions recommended systems architecture and the product solution's Total Cost of Ownership (TCO.)

Proposers must submit complete systems architecture diagrams defining all hardware, software, network, database, components, and their connectivity. In addition, a complete itemized list of costs associated with the aforementioned items must be included.

Proposers must provide complete explanations for each instance of non-conformance and may be subject to further compliance inquiry by DoIT.

2.2.1. End-User Software

Component	Current Standard
Operating System	Windows7
Desktop Applications (i.e., word processor, spreadsheets, presentation)	Microsoft Office Suite 2010
E-Mail Client	Microsoft Outlook 2010
Web Browser	Microsoft Internet Explorer - IE8/IE9
Antivirus	Microsoft Forefront Server/Client Security
Mainframe Terminal Emulation	Rocket Software - Blue Zone
PDF Files Read/Write	Adobe Acrobat - Latest Version
Geographic Information Systems (GIS) Suite	ESRI ArcGIS v10.0 Desktop
Other	Must be Approved

2.2.2. End-User Hardware

Component	Desktop PC	Laptop
CPU	Intel Core i5-650 Processor	Intel Core i3-350M Processor
Memory	4GB PC3 RAM	4 GB DDR3 RAM
Video Card	Intel Integrated Graphics	Intel Integrated Graphics
Interface Card(S)	Ethernet /100/1000	Ethernet /100/1000
Wireless	802.11 a/n wireless, Bluetooth 2.1, V92 Modem	802.11 a/n wireless, Bluetooth 2.1, V92 Modem

2.2.3. Database Systems & Data Storage

Component	Current Standard
Operating Systems	<ul style="list-style-type: none"> • Microsoft Windows Server 2008 R2 Standard Edition • Microsoft Windows Server 2008 Enterprise Server (clustering or servers with 4 processors or more) • Oracle Enterprise Linux v5.5 • Red Hat Enterprise Linux v5.5
Database	<ul style="list-style-type: none"> • Oracle 11g R1 • MS SQL Server 2008 R1 64bit
Data Storage	SAN/NAS

2.2.4. Server Hardware (minimum requirements)

Component	Application Server	Database Server
Physical Servers		
Type	INTEL	INTEL
Power	Dual Redundant	Dual Redundant
Hard Drive Configuration	<ul style="list-style-type: none"> • Internal: 2 ea. 73GB 15KRPM serial attached SCSI • Additional Drives (separate enclosure) 5 ea. 300GB 15KRPM serial attach SCSI • RAID1/RAID5 	<ul style="list-style-type: none"> • Internal: 2 ea. 146GB 15KRPM serial attached SCSI 6Gbps hot plug • Additional Drives (separate enclosure) 5 ea. 300GB 10KRPM serial attach SCSI Hot Plug • RAID1/RAID5
CPU	<ul style="list-style-type: none"> • 2 each Intel Xeon X5570 • 2.93GHz, 8M Cache • 6.40GT/s QPI, Turbo, HT 	<ul style="list-style-type: none"> • 4 each Intel Xeon E7540 • 2.0GHz, 18MB Cache • 6.4GT/s QPI, Turbo HT • 6 Core @ 1066MHz
Network Interface Cards	4 each. Full Ethernet 10/100/1000 Base-T	2 each, Dual Port Gigabit (1000Mb) NIC w/TOE iSCSI PCIe.
RAM	<ul style="list-style-type: none"> • 48GB (12x4GB), 1066MHz Dual • RDIMMs optimized for 2 	<ul style="list-style-type: none"> • 128GB (32x4GB) • 1066MHz Quad Ranked

	processors	<ul style="list-style-type: none"> RDIMMs optimized for 4 processors Power Optimized
HBA	<ul style="list-style-type: none"> Fiber channel Dual Qlogic 4GB Optical fiber channel - Model 2460 or better. 	<ul style="list-style-type: none"> Fiber channel Dual Qlogic 4Gb Optical fiber channel HBA PCIe
External Storage Controller	<ul style="list-style-type: none"> SAS RAID controller - external PCIe, 256MB Cache (minimum) 	<ul style="list-style-type: none"> SAS RAID controller - external PCIe, 512MB Cache (minimum)
Maintenance	<ul style="list-style-type: none"> 3 Year, 24/7, 4 hour on-site (or NBD if specified) Parts & labor included. 	<ul style="list-style-type: none"> 3 Year, 24/7, 4 hour on-site Parts & labor included
Additional Hardware Requirements	<ul style="list-style-type: none"> Rails w/ cable management. Internal DVD+/- RW, SATA drive. 	<ul style="list-style-type: none"> Rails w/ cable management arm. Internal DVD+/- RW, SATA drive.
Virtual Servers		
	<ul style="list-style-type: none"> ESXi for Windows 2008 	<ul style="list-style-type: none"> Oracle VM: 2.2.2 and 3.x

2.2.5. Mobile Communication Devices

Device	Current Standard
Blackberry	<ul style="list-style-type: none"> RIM Blackberry Model 9330 Current Service Provider: Sprint Solutions

Vendor agrees that the solution/response provided to this solicitation is currently compatible with all of the aforementioned requirements and standards.

Yes _____ No _____

Exceptions: Please explain any instance of non-compliance with any requirements and standards.

3. Application Programming Interfaces (API) Protocol

An application-programming interface (API) is a particular set of rules ('code') and specifications that software programs can follow to communicate with each other. The County prefers the use of service-oriented APIs that is not bound to a specific process or system as well as providing remote procedure calls or web services. Comprehensive documentation for APIs and data exchange protocols is subject to acceptance testing and approval. All APIs must conform to version upgrades, O/S upgrades, web browser upgrades, etc.

4. Testing and Acceptance

All new systems and/or products will undergo a process of testing and acceptance. This process shall include the following minimum testing procedures prior to final acceptance by Fulton County Government:

1. The proposer shall certify in writing to the County that the system is completely installed, meets all requirements, is free of defects, the data conversion is complete and accurate, and the total system (application, file building, conversion, back-up and recovery procedures, etc.) is ready for operation.
2. The proposer shall be prepared to demonstrate all functions of the system prior to the start of user acceptance testing.
3. The proposer shall provide documentation and interface specifics on each interface provided. The burden of proof regarding on how each interface conforms to the IT Standards and Procedures is the responsibility of the proposer.
4. Upon receipt of the letter of certification from the vendor, Fulton County has a minimum of a sixty-day period to commence the process that will either accept or deny the acceptance the letter of certification. User acceptance testing will include an intensive exercise of each component and module of the system simulating a normal workload. This testing will provide assurance that the various components and modules of the system operate as specified. During this period, the system shall demonstrate a total availability of 99.99% or better.

- **Acceptance Criteria**

1. The solution meets the current published product specifications and documentation;
2. The solution is capable of running a variety of data on a repetitive basis without failure;
3. The solution meets the requirements and specifications described in this document and the functional requirements described in their bid response or response to RFP;
4. All documentation has been delivered and accurately reflects the operation of the solution;
5. All specified training has been conducted and accepted by Fulton County;
6. The interfaces properly provide the data necessary without disrupting the performance of the system or disrupting any of the original data files.
7. Once this acceptance testing is complete, the warranty period begins.

- **System Unavailable Criteria**

1. Any component or module capability is not available to all active workstations.
2. Any feature or specification either required within this document or stated in the proposer's response to bid or RFP does not perform as stated.
3. Conversion of all existing data files is not complete or is incompatible.
4. Interfaces are not complete and working.
5. Reporting features are not available and in compliance with requirements.
6. Training is incomplete or deemed inadequate by DoIT.

All new systems and/or products will undergo a process of testing and acceptance. This process shall include the following minimum testing procedures prior to final acceptance by Fulton County Government:

In addition, if the system requires a new install, either manually or automatically, for one hour or greater, the actual down time statistics will reflect the system as an outage.

In the event that the required level of reliability is not demonstrated by the end of the 60 day period, the County may extend the acceptance testing by another sixty (60) days. The Proposer must correct any deficiencies with the system in this time frame. If this extension is permitted, the Proposer shall reinitiate certification by submitting a revised letter of certification to the County specifying the corrections made to the system. The certification process described above will then be repeated.

Final acceptance will be made after the warranty period begins. This period will be a sixty-day (60) period of closely monitored post implementation support provided by the proposer to resolve any issues that may arise after the system has been placed into production.

5. Training Requirements

The Vendor shall provide a detailed, documented training plan outlining the agenda regarding training goals, learning objectives, and learning methods. The training plan shall also include any prerequisites required for training for both the end-user and technical support staff. If learning objectives are not met at the end of the training period, the Vendor shall provide alternates means to meet learning objectives within the implementation process.

5.1. End-User Training

End-User Training must identify the types, amounts, duration, and costs. The proposer shall include a plan that results in acceptable training for all levels of the system's operation. The vendor shall recommend best practices and system configuration for effective system set up. Using this information, the vendor will prepare a manual (softcopy, searchable PDF) that defines the workflow processes and procedures for users. The vendor shall provide a sample of the typical manual or training approach as part of their response.

5.2. Administrative/IT Training

The proposer shall prepare a training plan for IT staff that will enable them to administer and support the system. This plan shall include any courses off-site, classroom training, and on-the-job training necessary for systems analysts, computer operators, security personnel, programmers, database, web and network personnel. Training will include the complete support and custom programming and custom reporting to applicable staff. Describe any prerequisite knowledge or skills required. The proposal must include the cost associated with training.

Additionally, the vendor must clearly define a description of the recommended number and type of staff required to support the system. The skill sets required of each individual should be included in this description. The description of recommended staffing requirements should include all management, technical

and functional areas for the ongoing support of the system. The minimum training requirements include, at minimum, two employees in all support roles. The instructional method of "Train the trainer" is not a valid training platform.

During this training, Fulton County will designate senior technical personnel in each class to evaluate the training provided in order to ensure that the training and the instruction provided is sufficient to provide the necessary knowledge and skills. At the end of the first day of any training class, a signoff must be obtained from this designee in order for the proposer to meet this requirement.

6. Product Solution Documentation

It is required that the vendor provide an electronic copy, and optionally, a hardcopy of the following documentation. Please list all reproducible (DVD or CD format only) copies of documentation which is a criteria for system acceptance.

For example:

1. User training manuals for all transactions and functions supported
2. Data Dictionary, data model/entity relationship and data flow diagrams
3. System module chart (application flow) showing each application module and its relation to the other modules
4. General system design and reference information
5. System transaction flow and control
6. List of all application programs, with summary of their purpose or function including a table of all procedures or processes and which processes are called by what other processes
7. Detailed program documentation within each source module
8. Table definitions and record layouts
9. Definition of all system control tables
10. Report and workstation display formats
11. A listing of all "canned" reports complete with full descriptions
12. The County shall be granted the rights to duplicate documentation for record and training purposes.

Vendor agrees that the solution/response provided to this solicitation will be compatible with Fulton County Standards indicated above and will meet all the criteria listed in the Appendix Fulton County Standards

Yes _____ No _____

Exceptions: Please explain any reason for not being able to comply with the County Standards stated in this Appendix.