Solicitation 1305-013

Building Automation System Replacement Services - Blythe Courthouse

Bid designation: Public

Superior Court of California, County of Riverside

Bid 1305-013
Building Automation System Replacement Services - Blythe Courthouse

Bid Number	**1305-013**
Bid Title	**Building Automation System Replacement Services - Blythe Courthouse**
Bid Start Date	**May 31, 2013 10:34:53 AM PDT**
Bid End Date	**Jun 17, 2013 8:00:00 AM PDT**
Question & Answer End Date	**Jun 11, 2013 9:00:00 AM PDT**
Bid Contact	**Bryce Caviel** **Buyer** **Bryce.Caviel@riverside.courts.ca.gov**
Contract Duration	**One Time Purchase**
Contract Renewal	**Not Applicable**
Prices Good for	**120 days**
Pre-Bid Conference	**Jun 11, 2013 11:00:00 AM PDT** **Attendance is mandatory** **Location: MANDATORY BID CONFERENCE OR WALKTHROUGH: The Court requires that interested vendors attend a mandatory walkthrough for this RFP. In the event a vendor is unable to attend this walkthrough, an authorized representative may attend on their behalf. A representative may only sign in for one (1) vendor. Each vendor must be certain to check-in at the mandatory vendor walkthrough, as the attendance list will be used to ascertain compliance with this requirement. Bids from vendors who do not attend the mandatory vendor conference will not be accepted or considered.** **RFP Vendor walkthrough will be conducted onsite at the Court's Blythe Courthouse located at 265 N. Broadway, Blythe, CA 92225. Attendees are to meet outdoors, surrounding entryway of building.** **Please adhere to a maximum of two (2) attendees from each company. Proposers are encouraged to RSVP through BidSync prior to attendence.**
Standard Disclaimer	**The Court is not responsible for, and accepts no liability for, any technical difficulties or failures of any type or fashion that result from conducting business electronically. The Court shall have no obligation to any company or successful bidder unless or until the full execution of a final PO/contract. Mere selection and notification by the Court to the successful bidder and/or the process of negotiating a PO/contract shall not create any obligations on the Court.**
Bid Comments	**The Superior Court of California, County of Riverside serves the 2.2 million residents of Riverside County through 15 court locations in three geographical regions – Desert, Mid-County and Western. Located in the heart of Southern California, Riverside County encompasses 28 cities, over 7,300 square miles, and ranks among the nation's fastest growing, and the state's most populous, counties. In addition to judges and commissioners, the Court has over 1,100 employees.** **The Court is seeking proposals for Building Automation System (BAS) Replacement Services at the Court's Blythe Courthouse, located in Blythe CA.** **Price should be all inclusive, with the exception of any applicable taxes.** **As applicable and necessary, please attach/submit your documents using the upload attachment command you will see when you enter your prices/information onto the Line Item(s).** **As you access the court documents, some may be view only, but many of the documents call for you to input information into the blanks, directly onto the document. Failure to input requested information may result in your bid being deemed non-responsive.** **Added on Jun 3, 2013:** **Mandatory walkthrough date has been extended to 6/11/13, 11 am.**

Changes made on Jun 3, 2013 8:27:21 AM PDT

Pre-Bid Conference Changes	**Pre-Bid Conference information has changed. Please review all Pre-Bid Conferences.**

Item Response Form

Item	**1305-013--01-01 - Not-To-Exceed Cost**
Quantity	**1 each**
Unit Price	
Delivery Location	**Superior Court of California, County of Riverside** Blythe Court Superior Court of CA, County of Riverside 265 N. Broadway Blythe CA 92225 **Qty** 1

Description
Please enter not-to-exceed cost total.

Item	**1305-013--01-02 - Cost Proposal Breakdown**
Quantity	**1 each**
Unit Price	
Delivery Location	**Superior Court of California, County of Riverside** Blythe Court Superior Court of CA, County of Riverside 265 N. Broadway Blythe CA 92225 **Qty** 1

Description
Please attach (upload) cost proposal breakdown on this line item.

Item	**1305-013--01-03 - Required License(s)**
Quantity	**1 each**
Unit Price	
Delivery Location	**Superior Court of California, County of Riverside** Blythe Court Superior Court of CA, County of Riverside 265 N. Broadway Blythe CA 92225 **Qty** 1

Description
Please attach (upload) all required project licenses on this line item.

Item	**1305-013--01-04 - Seller's Permit/Certificate of Registration Documentation**
Quantity	**1 each**
Unit Price	
Delivery Location	**Superior Court of California, County of Riverside**

Blythe Court
Superior Court of CA, County of Riverside
265 N. Broadway
Blythe CA 92225
Qty 1

Description
Please attach (upload) Seller's Permit/Certificate of Registration documentation on this line item.

Item	**1305-013--01-05 - Sample As-Built Drawing Set**
Quantity	**1 each**
Unit Price	
Delivery Location	**Superior Court of California, County of Riverside** Blythe Court Superior Court of CA, County of Riverside 265 N. Broadway Blythe CA 92225 **Qty** 1

Description
Please attach (upload) Sample As-Built Drawing set of work similar to this project scope of work including network riser diagram, airflow diagrams, panel diagrams, controller wiring details, sequence of operations, device details.

Item	**1305-013--01-06 - Sample Projects/References**
Quantity	**1 each**
Unit Price	
Delivery Location	**Superior Court of California, County of Riverside** Blythe Court Superior Court of CA, County of Riverside 265 N. Broadway Blythe CA 92225 **Qty** 1

Description
Please attach (upload) List of three (3) representative sample projects utilizing LonMaker Turbo including client name, company, email, and phone number.

Item	**1305-013--01-07 - Sample of LonMaker Turbo Programming**
Quantity	**1 each**
Unit Price	
Delivery Location	**Superior Court of California, County of Riverside** Blythe Court Superior Court of CA, County of Riverside 265 N. Broadway Blythe CA 92225 **Qty** 1

Description
Please attach (upload) a sample LonMaker Turbo programming for a similar project type representing the Contractor's work performed.

Superior Court of California, County of Riverside
Procurement Department
4050 Main Street, Lower Level
Riverside, CA 92501

TO: POTENTIAL PROPOSERS

FROM: Superior Court of California, County of Riverside
Procurement Department

DATE: 05/31/13

SUBJECT: Request For Proposal ("RFP") #1305-013

BUILDING AUTOMATION SYSTEM (BAS) REPLACEMENT SERVICES – BLYTHE COURTHOUSE

ACTION REQUESTED: You are invited to review and respond to the RFP.

This is a fully electronic RFP process, including electronic submission of proposals. See the Court Online Procurement Website at www.BidSync.com.

The RFP includes:

- STATEMENT OF WORK
- TIMELINE
- INSURANCE REQUIREMENTS
- ADDITIONAL PROVISIONS
- EXHIBIT A: BAS SYSTEM GRAPHIC STANDARDS AND REQUIREMENTS OF THE ADMINISTRATIVE OFFICE OF THE COURTS
- Any/all other attachments, documents, forms, terms and conditions, Model Contract, etc., as posted for this RFP on the Court Online Procurement Website: www.BidSync.com

GENERAL

BUILDING AUTOMATION SYSTEM (BAS) REPLACEMENT SERVICES – BLYTHE COURTHOUSE

The Superior Court of California, County of Riverside (hereafter defined as the "Court") is seeking all offerors of Building Automation System (BAS) Replacement Services. These services are being requested to replace an outdated BAS system located at the Court's Blythe Courthouse location in Blythe, California. Contractor shall provide these services to the Court which shall include, but not limited to, BAS assessment/configuration, hardware/software removal, hardware/software implementation and installation, as well as maintenance.

The HVAC Control System (BAS) shall be furnished, engineered, installed, tested and calibrated by factory certified technicians qualified for this work. The contractor shall have in place a support facility located within 200 miles of the project site with technical staff, spare parts inventory and all necessary test and diagnostic equipment. Factory trained technicians shall provide instruction, routine maintenance, and emergency service within 24 hours upon receipt of request.

STATEMENT OF WORK

BUILDING AUTOMATION SYSTEM (BAS) REPLACEMENT SERVICES – BLYTHE COURTHOUSE

1. SERVICE REQUIREMENTS

A. Blythe Courthouse is an 11,016 square foot, single story building. The building is 100% owned and operated by the AOC.

B. Normal building occupancy is Monday through Friday 7:30 a.m. – 5:00 p.m.

C. Equipment Schedules:

Mon: 4:30 a.m. – 5:00 p.m.
Tue-F: 5:00 a.m. – 5:00 p.m.
Sat: None
Sun: 5:00 p.m. – 9:00 p.m.

D. System Description

The current Building Automation System (BAS) is a Trane Tracker/Tracer system, currently running in a standalone mode. The system is comprised of one main controller and XX communications modules housed in a single telecom room. These communications modules are wired individually to the rooftop packaged units.

E. BAS Replacement Services shall be performed as a design-build project. Contractor shall visit the Superior Court of the State of California, County of Riverside, Blythe Courthouse site prior to submitting a bid proposal. Ascertain and check all conditions and take all measurements that may affect the work. Drawings provided are to be used at Contractor's risk; drawings are schematic and may or may not be drawn accurately. No allowance shall subsequently be made for any additional expenses or claims due to the failure or neglect under this section to make such examination, including examination of restricted working conditions or such other difficulties that can be visually observed during site visit.

F. All bidders must be licensed contractors in the State of California regularly engaged in the type of work described herein, and licensed to work in the County of Riverside.

G. Number of Bidders: No less than two (2) TAC Vista Partners with no less than two (2) TAC Vista projects deployed and successfully completed with UL 864 compliance.

1.1 GENERAL

1. System Description

The current Building Automation System (BAS) is a Trane Tracker/Tracer system, currently running in a standalone mode. The system is comprised of one main controller and XX communications modules housed in a single telecom room. These communications modules are wired individually to the rooftop packaged units.

2. Project Intent

a. This project will replace all Trane controls, and control devices with new Lon based controllers, hardware, and software.

b. Existing DDC controllers shall be replaced with new controllers designed to operate efficiently with Lon controllers. (UUKL-864 rated for smoke control as required by code).

c. All valve and damper operators shall be replaced.

d. A PC Operator Workstation (OWS) shall be installed to communicate with the BAS via Ethernet.

e. A server shall be provided which will contain the BAS database and will have the ability to communicate with all portions of the system via Ethernet as well as a separate Ethernet connection for remote desktop connections.

B. The BAS contractor must be regularly engaged in the service and installation of LonWorks based systems as specified herein. In addition, the contractor shall employ and assign to this project, engineers and technicians that are regularly engaged in the service and installation of LonWorks based systems as specified herein.

C. The BAS contractor must have no less than three (3) similar demonstration projects, which have LonWorks based building systems as specified herein. The demonstration projects must be on-line and functional such that the Owners/User's representative can observe the system in full operation.

D. The BAS contractor shall be an authorized representative in good standing of the manufacturer of the proposed hardware and software components. In addition, the contractor shall employ and assign to this project engineers and technicians that have experience with the proposed hardware and software components.

E. The BAS contractor shall have an office that is staffed with designers trained in integrating interoperable systems and technicians fully capable of providing LonWorks instruction and routine emergency maintenance service on all system components.

F. The BAS contractor shall have in house capabilities to provide control strategies for whole building control. This includes HVAC and lighting applications.

SECTION 01 01 01
GENERAL REQUIREMENTS

1. PROJECT INFORMATION

A. Project Identification: BAS Replacement

B. Owner

1. Judicial Council of California – Administrative Office of the Courts

C. Owners Representative

1. Superior Court of Riverside County

D. Construction Management

1. Superior Court of Riverside County

E. Service Provider

1. Superior Court of Riverside County

1.02 SUMMARY

A. General Description

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BAS via Ethernet.

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2. PRODUCTS

2.1 GENERAL

A. Direct Digital Control System shall be the latest LonWorks® version of TAC Vista by Schneider Electric.

3. EXECUTION

3.1 SUMMARY OF WORK

A. Definitions

1. HMI: Human Machine Interface
2. OWS: Operator Workstation
3. DCU: Digital Control Unit
4. BAS: Building Automation System
5. LAN: Local Area Network

B. Construction Manager (CM) Responsibilities

1. Bids. CM shall request and obtain all bids and present them to the Owner and the Owner's representatives for review prior to commencement of any work.
2. Commissioning Support. CM shall designate one Court person to interface with the Contractor throughout the project.
3. Schedule. CM shall maintain a project schedule, developed with the Contractor, and communicate the progress of the project with the Owner.
4. Project Start Meeting. A coordination meeting with the Construction Manager, Owner Service Provider, Commissioning Authority, and Owner representatives shall take place prior to commencement of any work.

C. Contractor Responsibilities

1. Permitting. Contractor is responsible for all required permits.
2. Provide and install new LonWorks® TAC Vista software and controllers to fully encompass existing control points and sequences of operations per these documents and the original Trane Tracker controls submittal dated xx/xx/xxxx. All points shall be controlled via a LonWorks® controller as stated in section 23 09 23.
3. Remove the existing Trane Tracker controllers and dispose of them in the most eco-friendly manner, and recycle where applicable.
4. Control Valves. All existing control valve operators shall be replaced with new electronic operators.
5. Dampers. Service and lubricate all control dampers including economizer dampers and fire smoke dampers for full stroke operation.

6. Damper Operators. Replace all existing actuators with new electronic actuators.
7. VAV Box Dampers. Service and lubricate all dampers for full stroke.
8. Control Panel. New panels shall include power supply, fused disconnect switch, terminal strip, Panduit, and 120 VAC power duplex power outlet.
9. Disconnection. Disconnection of the existing control system must be thoroughly coordinated with the building occupant at least two weeks prior to any major work.
10. Replace existing DDC VAV controllers and devices with a Lon DDC integrated actuator/controller and associated devices including zone sensor, CO_2 (*as applicable to meet Title 24)*, electronic reheat valve (as applicable), and discharge air sensor.
11. Provide third party certified test and balance of the airside systems.
12. Provide and install a new TAC Vista Direct Digital Control system in compliance with
    ANSI/ EAI 709.1 as described herein.
13. Cable and Conduit. Install required cable, conduit, for a local BAS/LAN connection between the new controllers as needed.
14. System Software. Provide and install one (1) original licensed copy of TAC Vista software for the Owner system.
15. Operator Workstation. Provide and install one (1) workstation with printer for the TAC Vista DDC system as outlines herein.
16. Software. Provide an original license copy of software and labor to install and configure MS SQL.
17. System Server. Provide one (1) new Dell server for the TAC Vista database software.
18. *Point Additions. Contractor shall analyze and recommend all existing points and shall recommend additions for optimal control. These points should be presented before contract award to prevent any change orders during the project. If a point is needed after award of contract, the contractor shall absorb all cost associated with the addition of that point.*
19. Graphics. Provide a fully functional TAC Vista graphics package as outlined herein. Graphics backgrounds are to match Exhibit B.
20. Training. Provide onsite labor and phone support for training and assistance on the TAC Vista system. Reference section 01 79 00 Demonstration and Training for detailed requirements.
21. DSL Connection. Provide wiring as needed to connect new DSL line located in telecom room and coordinate with the DSL provider as needed. The Owner shall order the DSL installation and service; Contractor to verify the quality of the connection to the BMS.
22. Design and Project Documentation. Owner will provide the Contractor with all

available architectural, mechanical and electrical drawings showing existing conditions. Contractor shall include at a minimum, the following in their design and project submittals:

a. Network diagram showing new and all existing equipment; new and existing equipment shall be identified as new or existing on the drawings.

b. Electrical and detailed wiring diagrams showing connection of the existing control panels to the new Schneider/TAC Operator Workstation and Server.

23. Working Conditions. The work can be performed during the hours of (8:00 PM to 6:00 AM Monday through Friday, and as required to maintain the overall project schedule, Saturday and Sunday with no overtime impact to the Owner). The contractor shall perform the work such that none of the controlled equipment is unavailable during their work. If off-hour work is required, the contractor shall schedule employees in a shift manner in an effort to eliminate overtime.

24. Verification. Completely install and thoroughly inspect, test, and document all systems and equipment. The contractor shall provide a dependable and fully functional system that operates properly and efficiently.

25. Assist Commissioning Authority in performing verification and performance testing of the Owner control system. Reference Section 23 08 05 for complete Commissioning guidelines and responsibilities.

26. Daily Work List. At the end of each day the contractor shall close each shift with a daily report on the activities performed and the plan for the next work day. A daily work list is to be submitted via email to the Construction Manager no later than 9:00AM.

27. Tool Policy. Contractors are to adhere to the to a strict tool check-in and check-out policy. This is a secure facility with various levels of in-custody personnel, the loss of one screw in an inmate area could result in major damage.

28. Weekly Jobsite Meetings. Contractor is to schedule and conduct weekly job meetings to coordinate the activities of the week with building maintenance, commissioning agents, construction manager to include but not limited to progress against schedule, submittal status, RFI status, critical path schedule when necessary, and potential upcoming safety issues.

3.2 WORK RESTRICTIONS

A. Access to Site

1. Security Clearance

a. Contractor must secure a State security clearance for each individual who will be working on the project.

b. Non-badged workers must be cleared by the Construction Manager and escorted (and in line-of-site) by badged personnel at all times at all hours.

2. Access

a. Keys will be distributed on an as-needed basis. Work must be coordinated in advance with the Construction Manager for where access will be needed and the times and dates required for access.

b. Secure Holding Cells. Strict coordination and evening work will need to be scheduled with the Sheriff as it becomes necessary to work in or around holding cells, for access to this area. Two weeks' notice is required for the coordination of this work. No inmates will be present; however strict guidelines must be followed for this area.

B. Parking

1. Parking is available in the shared Court/County parking lot.

2. All parking costs are the responsibility of the contractor, and under no circumstances shall the Owner receive requests for additional monies due to parking related issues.

END OF SECTION 01 00 001

SECTION 01 02 01
GENERAL OPERATION AND MAINTENANCE DATA PART 1

PART 1 SECTION INCLUDES

A. General
   1. Operation and Maintenance Manual Components
      a. Warranty Documents
      b. As-Built Documents
      c. System Manual Components
      d. Maintenance and Service Requirements
      e. System Engineering and Operating Manuals
      f. Product Data Sheets
      g. Electronic Documents

PART 2 EXECUTION

2.1 OPERATION AND MAINTENANCE MANUAL COMPONENTS

A. Warranty Documents
   1. Provide copy of the warranty letter
   2. Provide any manufacturer's warranty data as applicable

B. As-Built Documents
   1. System architecture diagram for components within the building annotated with specific location information.
   2. As-built wiring design diagram for each control panel.
   3. As-built wiring design diagram for all components.
   4. Installation design details for each I/O device.
   5. As-built system flow diagram for each system.
   6. Sequence of control for each system.
   7. Binding map for the building (electronic only).

C. Systems Manual Components
   1. Sequence of Operations (for the entire system)
   2. Manual Operating Procedure (if the automation system fails)
   3. Spare Parts List

D. Maintenance and Service Requirements
   1. System Maintenance Tasks. Provide a list of recommended maintenance tasks associated with the system servers, operator workstations, data servers, web servers and web clients.
      a. Provide names, addresses, and telephone numbers of installing contractors and service representatives for equipment and control systems.
      b. Provide a description of maintenance tasks and frequency
      c. Reference the product manual that includes instructions on executing the task.

E. System Engineering and Operating Manuals
   1. This shall include but not be limited to the following:
      a. Operating the system.
      b. Administrating the system.
      c. Engineering the operator workstation.
      d. Application programming.
      e. Engineering the network.
      f. Setting up the web server.
      g. Report creation.
      h. Graphics creation.
      i. All other engineering tasks.

F. Product Data Sheets
   1. This shall include but not be limited to the following:
      a. Product data sheet for each component.
      b. Installation data sheet for each component.

G. Electronic Documents
   1. Software
      a. Submit a LICENSED COPY of all software installed on the servers and workstations.
      b. Submit all licensing information for all software installed on the servers and workstations.
      c. Submit a LICENSED COPY of all software used to execute the project even if the software was not installed on the servers and workstations.
      d. Submit all licensing information for all of the software used to execute the project.
      e. All software revisions shall be as installed at the time of the system acceptance. All submittals will include all revisions.

2. Graphics

a. Submit all graphic files in electronic format prior to System Readiness Checklist completion in the commissioning process.

b. Include copies of all secondary graphic files such as bitmaps, jpegs, etc. that were used in the creation of the graphic pages.

3. Firmware Files

a. Submit a copy of all firmware files that were downloaded to or pre-installed on any devices installed as part of this project.

b. This does not apply to firmware that is permanently burned on a chip at the factory and can only be replaced by replacing the chip.

c. Submit a LICENSED COPY of all application files that were created during the execution of the project.

2.2 DOCUMENT SUBMITTAL

A. Submittal

1. The Contractor shall submit the following:

a. (3) Electronic sets submitted via flash drive for submittal review

b. For each electronic set, provide Acrobat (.pdf) formatted files with each document properly bookmarked for each section for easy navigation. Any scanned documents shall be clearly legible.

B. Submittal Review

1. The Construction Manager, Owner, and Commissioning Agent shall review the O&M submittal within 10 working days and provide comments to the Contractor to finalize the deliverable.

C. Approved Set Submittal

1. Final deliverable shall be submitted as follows:

a. Printed Copy Documents: (2) Full Sets

1) The information shall be in three ring binders with tabs and a table of contents for each binder set.

2) Diagrams shall be on 11” by 17” foldouts. If color has been used to differentiate information, the printed copies shall be in color.

b. Electronic Documents: (3) Electronic sets submitted via flash drive

1) Load one complete electronic set onto the BAS Operator Workstation

END OF SECTION 01 02 01

SECTION 01 03 01
WARRANTIES

PART 1 GENERAL

1.01 SUMMARY

A. The Contractor shall guarantee the following:

1. All new materials, new equipment, apparatus and workmanship shall be free of defective materials and faulty workmanship.
2. All equipment and material will produce the results specified.
3. All systems have been fully tested, adjusted, balanced, and commissioned.
4. The Contractor shall furnish written guarantee to replace all defective work, materials, and services furnished under this Section, at no additional cost to the Owner, for the warranty period.
5. The warranty period shall be eighteen (18) months from date of installation. Actual date shall be established after completion of successful installation verification with the Commissioning Authority.
6. The COURT reserves the right to make temporary repairs as necessary to keep equipment in operating condition without voiding the guarantees or relieving responsibility during the guarantee period.

B. The warranty shall not include:

1. Standard maintenance items
2. Repairs or replacement of equipment damaged as a result of misuse, abuse, or lack of proper maintenance.
3. Existing equipment and materials not provided by this contract.

END OF SECTION 01 03 01

SECTION 01 04 01
DEMONSTRATION AND TRAINING

PART 1 GENERAL

1.01 TRAINING INSTRUCTIONS

A. On-Site Training: Provide services of controls contractor's qualified technical personnel for eight (8) 4-hour days for a total of 32 hours to instruct COURT's personnel in operation and maintenance of Direct Digital Control. The Owner's representative shall notify contractor one week in advance of each day of requested training. The Contractor's designated training personnel shall meet with the Engineer and Owner's representative for the purpose of discussing and fine-tuning the training agenda prior to the first training session. Training agenda shall generally be as follows:

1. Operator Workstation (OWS) Training – For all potential users of the OWS:

   a. Brief walk-through of building, including identification of all controlled equipment and condensed demonstration of controller portable and built-in operator interface device display capabilities.

   b. Brief overview of the various parts of the O&M Manuals, including hardware and software programming and operating publications, catalog data, controls installation drawings, and DDC programming documentation.

   c. Demonstration of workstation login/logout procedures, password setup, and exception reporting.

   d. Demonstration of workstation menu penetration and broad overview of the various workstation features.

   e. Overview of systems installed.

   f. Present all site-specific point naming conventions and points lists, open protocol information, configuration databases, back-up sequences, upload/download procedures, and other information as necessary to maintain the integrity of the Direct Digital Control.

   g. Overview of alarm and trending features. h. Overview of workstation reports.

   i. Review of installed components and how to install/replace, maintain, commission, and diagnose them.

   j. General review of sequence of operations and control logic for the project site, including stand alone and fail safe modes.

   k. Uploading /Downloading and backing up programs.

B. Submittals

1. Contractor shall submit a Training Plan for approval prior to System Readiness Checklist completion in the commissioning process. Training Plan shall include an agenda for each training session shall be included. A blank sign-in sheet shall also be included.

2. Completed Sign-in Sheets shall be submitted as final documentation for the Operation and Maintenance Manuals.

END OF SECTION 01 04 01

SECTION 02 01 01
TESTING, ADJUSTING AND BALANCING FOR HVAC

PART 1 GENERAL

1.01 DESCRIPTION

A. Provide testing for all air systems in the scope of work.

B. Air balancing shall be performed by an Independent Test and Balance Agency retained under this Contract. Contractor shall provide all tests, inspections, and preparations specified herein to facilitate balancing activities of the Test and Balance Agency.

C. References:

1. All referenced specification sections shall be adhered to as if the section was repeated herein
2. Section 01- General Requirements
3. All applicable sections of Section 02 – Heating, Ventilation, and Air Conditioning (HVAC)
4. Specification Subsection 02 02 01 Commissioning of Direct Digital Control Systems.

D. Quality Assurance:

1. General:
   a. Prior to balancing, Contractor shall perform complete testing, checking, and adjusting of all systems and equipment existing, installed, or modified.
   b. System balancing shall be done by an AABC- or NEBB-certified agency regularly engaged and specializing in the field of air balancing. Testing and balancing shall be performed in complete accordance with the "National Standards for Total System Balance," as published by the Associated Air Balance Council.
   c. The Test and Balance Agency shall have experience in projects of similar type and scope. Submit a list of names and qualifications of all personnel proposed to do this work. A detailed description of the procedures and the instrumentation employed shall accompany the personnel list. Only experienced personnel and rational orderly procedures will be accepted.
2. Requirements of Regulatory Agencies:
   a. Air balance between and within rooms shall be in accordance with California Mechanical Code.
   b. Balance contractor shall be NIST/NBS certified. All certificates shall be available upon request.
3. Referenced Standards:
   a. AABC - Associated Air Balance Council.
   b. NEBB - National Environmental Balancing Bureau.

c. SMACNA - Sheet Metal and Air Conditioning Contractors National Association.

E. Submittals

1 Statement from Test and Balance Agency indicating successful balancing of at least three (3) systems of comparable type and size.

2 Qualifications of testing and balancing personnel.

3 Procedure to be followed, including:

a. Detailed procedures, specific to this project.

b. Agenda for this project.

c. Report forms.

d. Project performance guarantee.

4 Descriptive data, including:

a. Air flow measuring equipment.

b. Pressure gauges.

c. Thermometers.

d. Other testing instruments.

e. Certificates of calibration of test instruments.

5 One (1) copy of the field written copies immediately following field work for Commissioning Authority review.

6 Three (3) bound printed copies and (1) electronic copy (.pdf format) of the final balance report typed in final form.

7 Written report, listing exceptions, describing any component, i.e., damper, valve, etc., which does not function properly.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.01 PREBALANCE PREPARATION BY TEST AND BALANCE AGENCY

A. Study the Specifications and Drawings and prepare schedule to inspect, test, and balance air systems. Coordinate schedule requirements with the Contractor so that system testing and balancing is complete prior to test run of HVAC systems and final acceptance.

B. Within two (2) weeks of receiving authorization for projects notify the Owner in writing if the installation poses any potential balancing problems or if any additional balancing devices which are not shown or specified are necessary for a total system balance.

C. Preliminary Investigations: evaluate site conditions prior to performing work to develop a work plan and schedule.

D. TAB Plan: TAB Contractor shall submit a complete test and balance plan including certifications, test equipment calibrations, blank forms specific to the project including design cfms. The Commissioning Authority shall confirm acceptance of the plan.

3.02 FINAL TEST AND BALANCE ACTIVITIES

A. Balancing Criteria

1. Air inlets and outlets shall be balanced to within +/-10 percent to of design; all other air system readings within plus 5 percent to minus 0 percent of design. Temperature readings shall be accurate to within 1/2 degree Fahrenheit.
2. Instruments shall have been calibrated within the last six (6) months and checked for accuracy prior to starting the balancing procedure. Make velocity readings with an instrument that does not require a separate timer.
3. All readings, measurements, and observations shall be recorded on printed data sheets and tabulated with appropriate calculations. Recorded data shall include the following:
   a. Fan speed and calculated fan delivery outlet velocity, inlet and outlet static pressures, drive motor nameplate amperes, and normal operating amperes. This data shall be taken for the existing and new air-handling unit and exhaust fans serving the project area.
   b. Velocities, air volume factors, and calculated air volumes of new air outlets and inlets and those designated during preconstruction tests.
   c. Room temperatures and outside air temperature. B. Air Balancing

1. Make allowance for air filter resistance at the time of the tests. The main air supplies shall be at design air quantities and at an air resistance across the filter banks at the listed pressure drops for dirty filters with the variable frequency drive at 60 Hz or less.
2. Final position of manual dampers shall be plainly marked after balancing is complete.
3. Take measurements with an airflow hood.
4. Record results of the air balancing on AABC or equivalent forms, including positive identification of points of measurements taken, shown on a plan such as a marked print, and include the following data:
   a. Air temperature. b. Size of outlet.
   c. Specified CFM.
   d. Specified velocity. e. Actual CFM.
   f. Actual velocity.
   g.

Fan Data	Actual		Specified
CFM			
RPM		TOTAL S.P.	
AMP			
VOLTAGE			

5. Adjust main dampers and splitter dampers before adjusting individual branch dampers. In general, adjust splitter dampers first to obtain the proper proportion of air flow in each branch. Adjust main duct dampers second to obtain design air flows in each main duct. Adjust branch volume dampers last to obtain design air flows in each branch duct.Dampers behind diffusers or registers shall be utilized only as a final adjustment and only at the Owner's Representative's direction.
6. In the process of balancing, changes in fan RPM by sheave adjustment or sheave changes may be required for the new exhaust fans.
7. Make adjustments at all diffusers and registers to prevent drafts at the occupant level in the space. Portions of the diffusers and registers shall be blanked behind these units as directed or required or blades shall be redirected in order to prevent or remove drafts.
8. Positive or negative pressure relationships between supply and exhaust CFM shall be achieved in spaces wherever required by Code. Required air pressure relationships are absolute and shall be met regardless of allowed tolerances for air flow adjustments. All other rooms which are both supplied and exhausted shall be in balance (no difference between supply and exhaust), unless otherwise shown or specified.
9. The balancing report shall include a tabulation for each room CFM as follows:

1	2	3	4	5	Rm. No.
Supply	Exhaust	Return	Difference: Col.2-(Col. 3+4)		

10. Report shall include design and measured values for Col. 2, 3, and 4. Report shall also indicate tabulations of total air flows for each fan system.

C. Performance and Capacity Checks
   1. Take readings as required to demonstrate that the following equipment is operating in accordance with scheduled performance criteria and the manufacturer's published ratings:
      a. Air handling equipment.
      b. Spot Checking: After the Test and Balance Agency has submitted record of final readings, measurements, and test results for all systems, the Owner's Representative will make spot checks of each system. If spot check measurements differ materially from those submitted, the Owner's Representative will direct that the systems concerned be completely rebalanced at the Test and Balance Agency's expense and that new data be submitted.

3.03 COORDINATION WITH HVAC CONTROLS

A. Cooperate with Contractor in making system adjustments necessary to accomplish required performance.
B. Become thoroughly familiar with HVAC Controls Sequence of Operation.
   1. Where sequences require establishment of minimum and maximum air flows, multiple setpoints, reset schedules, or other variable conditions, furnish all testing and balancing necessary to establish required setpoints and fully balance systems under all possible operating conditions.
   2. Report measurements under all operating conditions as necessary to document

proper system operation under all specified modes of operation.

C. Check the following:
   1. All control devices are properly calibrated. Make temperature and pressure readings as necessary to verify calibration.
   2. Airflow monitoring stations provide accurate measurements at maximum and minimum airflows.
   3. Room temperature sensors and thermostats are installed to avoid erratic operation due to drafts or cold walls.
   4. Sensors are properly positioned to read intended temperatures.
   5. Simultaneous heating and cooling does not occur.
   6. Setpoints meet the intent of the Sequence of Operation.
   7. System interlocks operate properly.
   8. System components operate safely.

D. Submit written report to document control system coordination checking.

3.04 ACCEPTANCE TESTING

A. Comply to Section 02 02 01 Commissioning of Direct Digital Control Systems

END OF SECTION 02 01 01

SECTION 02 02 01
COMMISSIONING OF DIRECT DIGITAL CONTROL

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Submittal Reviews
B. Installation Verification
C. Pre-functional Testing
D. System Readiness Checklist
E. Functional testing of control systems
F. Documentation of tests, procedures, and installations

1.02 DEFINITIONS

A. Acceptance Phase: Phase of construction after and initial checkout when Performance Tests, operation and maintenance documentation review and training occurs.

B. Approval: Acceptance that a piece of equipment or system has been properly installed and is functioning in tested modes according to the Contract Documents and Commissioning Plan.

C. Building Automation System (BAS): The automated building system providing control and user interaction with select building systems.

D. Building Operations Plan: Plan includes, building operating schedules, setpoint standards, automated sequence of operations, manual mode of operations (DDC failure mode), maintenance schedule, service request instructions.

E. Commissioning Authority: An independent agent hired directly by the Owner and not otherwise associated with the Design Professional(s) or the Contractor. The Commissioning Authority assists the Contractor with coordinating commissioning and witnesses the commissioning activities on behalf of the Owner.

F. Commissioning Issue: A condition that affects, prevents or inhibits commissioning, and must be resolved to complete the commissioning process. Commissioning Issues are documented on the Commissioning Issues Log.

G. Commissioning Issues Log: A log maintained by the Commissioning Authority listing all Deficiencies and Commissioning Issues documented during the commissioning process. All issues require action, correction and closure, and shall be categorized as Open or Closed.

H. Commissioning Plan (Cx Plan): A document that outlines the organization, coordination, allocation of resources, and documentation requirements of the commissioning process.

I. Contractor: The Contractor directly contracted to the Owner with overall responsibility for the project, and all commissioning activities described. The Contractor is responsible for all work within its contract scope, including that the Installation Contractors.

J. Contractor's Commissioning Coordinator: Individual designated by the Construction Manager who plans, schedules, directs and coordinates all the Contractor's commissioning activities, and serves as the Commissioning Authority's single point of

contact for all administrative and coordination issues.

K. Deficiency: A condition in the installation or function of a component, piece of equipment or system that is not in compliance with the requirements of the Contract Documents. A Deficiency shall be considered a Commissioning Issue and documented on the Commissioning Issues Log.

L. Design Professional: The Design Professional(s) responsible for design of each portion of the project being commissioned.

M. Functional Performance Test (FPT): A test of the dynamic function, operation and control sequences of equipment and systems under various modes, such as during low cooling or heating loads, high loads, component failures, unoccupied, varying outside air temperatures, alarm, power failure, etc. The FPTs can include Monitoring or Trending the system performance over time to verify integrated operation and system performance to the fullest extent.

N. Indirect Indicators: Indicators of a response or condition, such as reading from a control system screen reporting a damper to be 100 percent open.

O. Installation Verification: Field verification and documentation of proper installation of system components. Process is complete when systems are ready for functional test. Installation Verifications are organized under the System Readiness Checklist (SRC) forms.

P. Manual Test: Using hand-held instruments, immediate control system readouts or direct observation to verify performance (contrasted with analyzing monitored data taken over time to make the observation).

Q. Monitoring: The recording of parameters (flow, current, status, pressure and the like) of equipment operation using data-loggers or the Trending capabilities of BMS.

R. Non-Compliance: See Deficiency

S. Non-Conformance: See Deficiency

T. Pre-Functional Checks & Tests: Based primarily on the manufacturer's detailed installation, and checkout sheets, these are the various checks and tests performed on a piece of equipment or system after preparing the equipment and system for initial operation. They are typically done to confirm that equipment and individual components are working properly, such as electrical spot measurements on motors, spot flow measurements, pressure testing, pipe flush-out and cleaning, control point-to-point checks, sensor calibration, actuator testing, etc., and include such things as mechanical system test and balance. Pre-Functional Checks & Tests are organized under the System Readiness Checklist (SRC) forms and must be completed prior to Functional Performance Testing.

U. Installation Contractor: Typically a subcontractor to the Contractor who provides and installs specific building components and systems.

V. System Readiness Checklist: Checklist of items that must be complete prior to Functional Performance Testing. Reference Pre-Functional Checks & Tests.

W. Test Procedures:The step-by-step process which must be executed to fulfill the Test Requirements.

X. Test Requirements: Requirements, indicating what modes and functions shall be tested.

Y. Trending: Monitoring using the Building Management Systems (BMS) to aid in functional testing and verify system operation and performance under actual operating conditions.

Z. Warranty Issues: Operational and outstanding issues and deficiencies identified

during the Warranty Period.

AA. Warranty Period: Warranty Period for the entire project, including components. Refer to General Conditions, Warranty, Guaranty, and Inspection of Work, for Warranty, Extended Guarantees, and Correction Period provisions.

1.03 GENERAL DESCRIPTION

A. The Owner shall retain a Commissioning (Cx) Authority who shall work with the Commissioning Coordinator and Contractor to ensure that the systems, equipment, and interfaces are installed, tested, and operate per the design intent; that the systems are adequately documented; and that the Owner is adequately trained on system intent, operation, and maintenance.

1.04 COMMISSIONING PROCESS OVERVIEW

A. Cx Plan. The Commissioning Authority prepares a Preliminary Cx Plan. The Cx Plan provides guidance in the execution of the commissioning process.

B. Cx Kick-off Meeting. Commissioning during construction begins with a kickoff meeting conducted by the Commissioning Authority where the commissioning process and systems to be commissioned are reviewed with the commissioning team members, including the Contractor and Installation Contractors. The Preliminary Cx Plan is presented and reviewed, and specific requirements are discussed. The Construction Manager shall designate the Contractor's Commissioning Coordinator at or before this meeting.

C. Submittals. Commissioning Authority shall review Contractor submittals and provide a Submittal Review Report providing comments related to design intent and systems to be commissioned.

D. Contractor Cx Submittals. As part of normal submittal, the Contractor shall submit to the Commissioning Authority additional equipment documents and forms including manufacturer installation checklists, point to point checklists, sequences of operations, training plan, building operations plan and equipment warranty information. The Commissioning Authority reviews these submittal documents and forms for completeness, and may request additional data and uses these documents to develop specific check-lists and test procedures for the equipment and systems to be commissioned.

E. Cx Plan Updates. The Commissioning Authority shall update the Cx Plan (with Contractor's Commissioning Coordinator and Contractor input) with equipment specific documentation, check-lists, and test forms during the process of construction up until Functional Performance Testing.

F. Cx Meetings. Commissioning meetings shall be conducted throughout construction with Commissioning Team members, as required, to plan, scope, coordinate, and schedule commissioning activities, review documentation, resolve Commissioning Issues and Deficiencies, and perform testing procedures. The Commissioning Authority shall submit meeting minutes for each meeting to the Contractor's Commissioning Coordinator for distribution to the Contractor.

G. Cx Field Reports. The Commissioning Authority shall produce a Cx Field Report for each site visit and include an updated Issues List. The Cx Field Report shall document progress of the project and identify any potential problems.

H. Issues List. During Installation Verification, Pre-Functional Checks & Tests, and Functional Performance Testing, all deficiencies and commissioning issues are recorded by the Commissioning Authority on the Commissioning Issues List. The Contractor shall correct commissioning issues and retest the system(s) without delay

at no additional cost to the Owner.

I. System Readiness Checklists. The Commissioning Authority develops System Readiness Checklist (SRC) forms which summarize and track the Installation Verifications, and Pre-Functional Checks & Tests required for each system and equipment to be commissioned. The Commissioning Authority shall complete the SRC forms with the Contractor's Commissioning Coordinator and Contractor, and the Contractor shall include completed installation Verification, and Pre-functional Checks and Test forms to document that systems and equipment are ready for operation. After completion and sign-off of all SRCs by the Commissioning Authority, the systems shall be deemed ready for Functional Performance Testing.

J. Start-up and Pre-Functional Checks. The Commissioning Authority shall coordinate with the Contractor's Commissioning Coordinator to schedule witnessing of select Start-up and Pre-Functional Checks & Tests, and perform a sample number of inspections and back-checks.

K. Functional Performance Test Forms. The Commissioning Authority shall develop final equipment and system Functional Performance Test (FPT) procedures and forms. These test procedures are submitted to the Contractor and Installation Contractors for review and comment.

L. Functional Performance Testing. FPTs verify the sequences of operations in all modes of operation and points of system failure to confirm proper operating procedures. The FPTs may be achieved by, or any combination of: manual testing; monitoring via the BMS system Trending capabilities; and analyzing the results. The Commissioning Authority witnesses the FPTs performed by the Contractor. Forms are completed by the Commissioning Authority.

M. Operation and Maintenance Manuals Verification. The Contractor shall compile and complete the Operations & Maintenance Manuals per the contract documents requirements. The Commissioning Authority shall review for completeness and provide comments to the Owner and Contractor on the Operation and Maintenance documentation prior to final submittal.

N. Training Verification. The Commissioning Authority shall review and provide comment to the Owner and Contractor on the specified training plan provided by the Contractor and shall verify that it has been completed. Copies of the training agenda and sign-in sheet shall be submitted by the Contractor to the Commissioning Authority during the submittal phase of the project, and upon completion.

O. Systems Manual. The Commissioning Authority shall assemble the Systems Manual. The Contractor's Commissioning Coordinator shall coordinate with the Contractor to collect all the required as-built documentation and Building Operations Plan for inclusion.

P. Final Commissioning Report. The Commissioning Authority shall complete the Final Commissioning Report and submit to the Owner and Contractor's Commissioning Coordinator.

Q. Final Commissioning Documentation. The Commissioning Authority shall complete the Final Commissioning Documentation (inclusive of the Final Commissioning Report), which includes records of all commissioning documentation for the project (design through construction). This final documentation shall be submitted to the Owner.

1.05 RESPONSIBILITIES

A. General

1. The Commissioning Team and all others involved in the commissioning process shall follow the Commissioning Plan, attend commissioning kickoff meeting, and additional commissioning meetings as necessary.

B. Owner

1. Owner shall support the Commissioning Authority's effort working with the construction team.
2. Owner shall provide a designated Project Manager to provide clarifications as needed during the project.
3. Owner shall provide a designated building engineer for training and project turnover.

C. Commissioning Authority

1. The primary role of the Commissioning Authority is to organize and lead the commissioning team, to develop the Commissioning Plan, and assist the Contractor's Commissioning Coordinator in coordination and execution of the commissioning process.
2. Prepare the Cx Plan and work with the Owner and Contractor to schedule commissioning activities.
3. Review submittals for compliance with the Cx Plan and the need for developing commissioning forms.
4. Convene commissioning team meetings, prepare meeting agendas and distribute meeting minutes.
5. Perform Installation Verification and author all associated forms.
6. Observe and inspect system and equipment installation, start-up, checkout, and testing, and record any Deficiencies and Commissioning Issues on the Commissioning Issues List.
7. Review and comment on Operation and Maintenance documentation and training plans.
8. Develop the Systems Manual utilizing the Contractor's as-built documentation and deliverables.
9. Assemble the commissioning documents and include in a Final Commissioning Report.
10. The Commissioning Authority is not responsible for:
    a. Review for code compliance
    b. Design and construction scheduling c. Cost estimating
    d. Construction management
    e. Providing tools and test equipment used for commissioning and data collection.
    f. Scheduling Functional Performance Testing
    g. Coordinating the work of Contractors, vendors and any special testing agents

D. Contractor's Commissioning Coordinator

1. The Construction Manager shall appoint a Contractor's Commissioning Coordinator to coordinate all commissioning activities between the Commissioning Authority and Contractor. The Contractor's Commissioning Coordinator is responsible for directing the Contractor to comply with all commissioning requirements and activities.

E. Contractor:

1. Completely install and thoroughly inspect, test, adjust, balance, and document all systems and equipment.
2. Assist Commissioning Authority (Commissioning Authority) in performing verification and performance testing. This shall generally include the following:
   a. Attend Commissioning (Cx) progress and coordination meetings.
   b. Prepare and submit required draft forms and systems information.
   c. Verify proper system operations prior to functional performance testing with the Commissioning Authority.
   d. Demonstrate system operation with the Commissioning Authority.
   e. Manipulate systems and equipment to facilitate testing.
   f. Provide instrumentation necessary for verification and performance testing.
   g. Contractor shall submit a Training Plan and train Owner's Representatives as specified.

3 Compensation for Retesting. Contractor shall be allowed one re-test of the Commissioning Authority as needed due to unforeseen failures. Contractor site time necessitated by incompleteness of systems or equipment at time of performance testing. All testing failures, which require on-site time for retesting, considered actual damages to the Owner. All parties under contract with the are affected by the retesting shall be included in the contract modification additional tests that are required.

PART 2 PRODUCTS

2.01 INSTRUMENTATION

A. Instrumentation required to verify readings and test the system and equipment performance shall be provided by Contractor and made available to Commissioning Authority. All equipment used for testing and calibration shall be NIST/NBS traceable and calibrated within the preceding 6-month period. Certificates of calibration shall be submitted for approval prior to utilization on the project.

2.02 TAB & COMMISSIONING PORTABLE OPERATORS TERMINAL

A. Contractor shall provide a portable operators terminal or hand held device to facilitate Testing, Adjusting, and Balancing (TAB) and calibration. This device shall support all functions and allow querying and editing of all parameters required for proper calibration and start up.

B. Connections shall be provided local to the device being calibrated. For instance, for VAV boxes, connection of the operator's terminal shall be either at the sensor or at the terminal box. Otherwise a wireless system shall be provided to facilitate this local functionality.

PART 3 EXECUTION

3.01 SYSTEM START-UP TESTING, ADJUSTING, CALIBRATION

A. Work and/or systems installed under this Division shall be fully functioning prior to Functional Performance Testing with the Commissioning Authority. Contractor shall start, test, adjust, and calibrate all work and/or systems.

3.02 FUNCTIONAL PERFORMANCE TESTING

A. Prior to Functional Performance Testing, the System Readiness Checklist must be completed and signed by all applicable parties.

B. Scheduling. Testing shall be scheduled within two weeks of SRC completion and sign-off. Schedule the demonstration with the Owner's representative 1 week in advance. Demonstrate the operation of the control hardware, software, and all related components and systems to the satisfaction of the Commissioning Authority and Owner. All modes of operations shall be tested per the FPT forms.

C. Sampling. Sampling is allowed for testing VAV zones. Testing shall involve small representative samples of systems/equipment randomly selected by the Owner and Commissioning Authority.

D. Functional Performance Tests shall include, but not be limited to the following.

1. System Server and Operator Workstation. Demonstrate that points specified and shown can be interrogated and/or commanded (as applicable) from all workstations, as specified.
2. System Software. Demonstrate all system software and current revisions are installed for all levels of the operating system, BMS operations software, BMS programming software.
3. Graphics. Demonstrate that graphic screens, alarms, trends, and reports are installed as approved.
4. Sensor Calibration. Demonstrate correct calibration of input/output devices using the same methods specified for the Start-Up Tests. A maximum of 10 percent of I/O points shall be selected at random by the Commissioning Authority for demonstration. Upon failure of any device to meet the specified end-to-end accuracy, an additional 10 percent of I/O points shall be selected at random by Commissioning Authority for demonstration. This process shall be repeated until 100 percent of randomly selected I/O points have been demonstrated to meet specified end-to-end accuracy.
5. Programming. Demonstrate that all DDC and other software programs exist at respective field panels. The Direct Digital Control (DDC) programming and point database shall be as submitted and approved.
6. Sequences of Operations. Demonstrate that all DDC programs accomplish the specified sequences of operation.
7. Field Panels. Demonstrate that the panels automatically recover from power failures, as specified. Demonstrate that the panels' response to LAN communication failures meets the requirements.
8. Trend Configuration. Demonstrate that required trend graphs and trend logs are set up per the requirements. Provide a sample of the data archive. Indicate the file names and locations.
9. Alarm Configuration. Demonstrate configuration of alarms and notification.

priorities.

10. Field Labeling. Demonstrate all devices, panels, and equipment are labeled as specified and are consistent with the system graphic labeling and as-built documentation.

3.03 SEASONAL TESTING

A. Seasonal Testing: Within 6 months of completion of the Functional Performance Testing, the Owner and Commissioning Authority shall schedule and conduct Seasonal Functional Performance Testing. Contractor shall participate in this testing and remedy any deficiencies identified.

3.04 TRENDS

A. Reference Section 02 05 01 – 3.05

3.05 ALARM MANAGEMENT

A. Reference Section 02 05 01 -3.07

3.06 OPERATION AND MAINTENANCE MANUALS

A. Reference General Section 01 02 01 Operation and Maintenance Data

3.07 OPERATOR TRAINING

A. Reference General Section 01 04 01 Demonstration and Training

END OF SECTION 02 02 01

SECTION 02 03 01
INSTRUMENTATION AND CONTROL DEVICES FOR HVAC

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Wiring
B. Control Valves and Actuators
C. Control Dampers and Actuators
D. Control Panels
E. Sensors
F. Electric Control Components (Switches, EP Valves, Thermostats, Relays, Smoke Detectors, etc.)
G. Transducers
H. Current Switches
I. Nameplates
J. Testing Equipment

1.02 DESCRIPTION OF WORK

A. Provide the following installation work as work of this section:
   1. Control wiring between field-installed controls, indicating devices, and unit control panels.
   2. Interlock wiring between electrically interlocked devices, sensors, and between a hand or auto position of motor starters as indicated for all mechanical and controls.
   3. Wiring associated with indicating and alarm panels (remote alarm panels, smoke control panel and interface panels) and connections to their associated field devices.
   4. All other necessary wiring for fully complete and functional control system as specified.

1.03 REFERENCE STANDARDS

A. Requirements of Regulatory Agencies:
   1. Nothing in Drawings or Specifications shall be construed to permit Work not conforming to applicable laws, ordinances, rules, regulations.
   2. When drawings or Specifications exceed requirements of applicable laws, ordinances, rules and regulations, comply with documents establishing the more stringent requirement.
   3. Applicable codes include the current version of those listed below, in addition to others specified in individual sections:
      a. AIR MOVEMENT AND CONTROL ASSOCIATION (AMCA)
         1) AMCA 500-D-07 (2007) Laboratory Methods of Testing Dampers

for Rating

b. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

1) ANSI/ASHRAE 15 (2007) Safety Code for Mechanical Refrigeration

2) ANSI/ASHRAE 55 (2004) Thermal Environmental Comfort Standard

3) ANSI/ASHRAE 62 (2007) Ventilation for Acceptable Indoor Air Quality

4) ANSI/ASHRAE (2007) Energy Efficient Design of New except Low Rise Residential Buildings

5) ANSI/ASME B16.34 (2001) Valves – Flanged, Threaded, and Welded Ends

6) ANSI C12.1 (2008) Code for Electricity Metering

7) ANSI/CEA 709.1B (2006) Open Standard Protocol

8) ANSI/EIA 709.1 (2000) Control Network Protocol Specification

9) ANSI/EIA 709.3 (2003 Free-Topology Twisted-Pair Channel Specification

10) ANSI/FCI 70.2 (2003) Control Valve Seat Leakage

c. California Code of Regulations, Title 24, Latest Adopted Edition, California Building Codes

d. AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS (ASHRAE)

1) ASHRAE Handbook of Fundamentals

e. ECHELON

1) Junction Box and Wiring Guideline for Twisted Pair LONWORKS® Networks, July 2003

f. FEDERAL COMMUNICATIONS COMMISSION (FCC)

1) FCC EMC (2002) FCC Electromagnetic Compliance Requirements

2) FCC Part 15 (2008) FCC Rules and Regulations Part 15: Radio Frequency Devices (Volume II)

g. INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)

1) IEEE C62.41 (1991; R 2002) Surge voltages in Low-Voltage AC Power

2) IEEE 100 Terms (2000) IEEE Standard Dictionary of Electrical and Electronics

3 IEEE 142 (1991) IEEE Recommended Practice for Grounding of and Commercial Power Systems

4) IEEE 802.1M (2000) Media Access Control Bridges

5) IEEE 802.2 (2000) Standards for Local Area Networks: Logical Link control

h. INSTRUMENT SOCIETY OF AMERICA (2006) ISA Standards

i. INTERNATIONAL ORGANIZATION FOR STANDARDIZATION (ISO)

1) ISO OSI Model Open Systems Interconnection Reference Mode

2) ISO/IEC (2008) DIS 14908-1 Lon Protocol

3) ISO/IEC (2008) DIS 14908-2 Lon Twisted-Pair Media

4) ISO/IEC (2008) DIS 14908-3 Lon Powerline Media

5) ISO/IEC (2008) DIS 14908-4 Lon IP Tunneling of the Protocol

j. LONMARK INTEROPERABILITY ASSOCIATION

1) SNVT Master List (2002) LonMark SNVT Master List; Version 2

2) LonMark XIF Guide (2003) LonMark External Interface File Reference Guide; Revision 4.0B

k. NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

1) NEMA 250 (2008) Enclosures for electrical Equipment (1000 Volt Maximum)

l. NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

1) NFPA 70 (2008) National Electrical Code

2) NFPA 90A (2009) Installation of Air Conditioning and Ventilation Systems

3) NFPA 262 (2007) Test for Flame-Propagation and Smoke Density Values for Electrical and Optical Fiber Cables Used in Spaced Transporting Environmental Air

m. UNDERWRITER'S LABORATORIES (UL)

1 UL 1778 (2006) Standard for Uninterruptible Power Supply

2) UL 60950 Equipment (2007) Safety of Information Processing and Business

3) UL 916 (2002) Energy Management Equipment

4) UL 1585 (2001) Class 2 and Class 3 Transformers

5) UL 555 (1999) Standard for Fire Dampers

6) UL 555S (1996; R2002) Leakage Rated Dampers for Use in Smoke Control Systems

7) UL 94 (1996; Rev thru July 2006) Tests for Flammability of Plastic Materials for Parts in Devices and Appliances

8) UL 268A (2006) Smoke Detectors for Duct Application

9) UL 864 (2007) Standard for Control Unit and Accessories for Fire Alarm Systems

n. U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

1) 47 CFR Part 15 Radio Frequency Devices

2) 21 CFR Part 11 Administrative Practice and Procedure, Computer Technology, Reporting and Record Keeping Requirements

o. NEC – National Electrical Code

4. If any of above requirements is in conflict with one another, or with Specifications' requirements, the most stringent requirement shall govern. Where codes are silent on an issue, NFPA Standards shall apply.

5. Industry standards and manufacturers' recommendations, diagrams or requirements shall be strictly adhered to for installation of materials and equipment.

1.04 QUALITY ASSURANCE

A. All equipment and accessories to be the product of a manufacturer regularly engaged in its manufacture.

B. All items of a given type shall be the products of same manufacturer. C. Supply all equipment and accessories new and free from defects.

D. Supply all equipment and accessories in compliance with the applicable standards with all applicable national, state and local codes.

1.05 DEFINITIONS

A. Definitions of term used in this Section may differ from those given in general and supplementary conditions and take precedence over them.

B. “Provide": to supply, install and connect up complete and ready safe and regular operation of particular work referred to unless specifically noted.

C. "Install": to erect, mount and connect complete with related accessories.

D. "Supply": to purchase, procure, acquire and deliver complete with related accessories.

E. "Work": labor, materials, equipment, apparatus, controls, accessories, and other items required for proper and complete installation.

F. "Piping": pipe, tube, fittings, flanges, valves, controls, strainers, hangers, supports, unions, traps, drains, insulation, and related items.

G. "Wiring": raceway, fittings, wire, boxes and related items.

H. "Concealed": embedded in masonry or other construction, installed in furred spaces, within double partitions or hung ceilings, in trenches, in crawl spaces, or in enclosures.

I. "Exposed": not installed underground or "concealed" as defined above.

J. "Indicated," "shown" or "noted": as indicated, shown or noted on drawings or specifications. K. "Similar" or "equal": of base bid manufacture, equal in materials, weight, size, design, and efficiency of specified products.

L. "Reviewed," "satisfactory," or "directed": as reviewed, satisfactory, or directed by or to COURT. M. "Motor Controllers": manual or magnetic starters (with or without switches), individual pushbuttons or hand-off-automatic (HOA) switches controlling the operation of motors.

N. "Control or Actuating Devices": automatic sensing and switching devices such as thermostats, pressure, float, electro-pneumatic switches and electrodes controlling operation of equipment.

PART 2 PRODUCTS

2.01 MATERIALS AND EQUIPMENT

A. General: Provide electronic control products as required, consisting of valve actuators, damper actuators, thermostats, clocks, controllers, sensors, and other components as required for complete DDC installation. Except as otherwise indicated, provide manufacturer's standard materials and components as published in their product information; designed and constructed as recommended by manufacturer, and as required for application indicated.

B. Communication Wiring: All wiring shall be in accordance with National Electrical Codes.

1. Contractor shall supply all communication wiring between Building Controllers, Routers, AAC's, ASC's and local and remote peripherals (e.g., operator workstations, printers, and modems).

2. Local Supervisory LAN: For any portions of this network required under this section of the specification, contractor shall use Fiber or Category 6 of standard TIA/EIA 68 (1000BaseT) and ISO/IEC 14908-1. Network shall be run with no splices and separate from any wiring over thirty (30) volts.

~~3.~~ *Primary Controller LANs: Communication wiring shall be individually supplied per manufacturers recommendations for distances installed, with overall PVC cover, Class 2, plenum-rated run with no splices and separate from any wiring over thirty (30) volts.*

C. Signal Wiring: Contractor shall run all signal wiring in accordance with National Electric Codes.

1. Signal wiring to all field devices, including, but not limited to, all sensors, transducers, transmitters, switches, etc. shall be twisted, minimum 18-gauge wire, with PVC cover. Signal wiring shall be run with no splices and separate from any wiring above thirty (30) volts.

D. Low Voltage Analog Output Wiring: Contractor shall run all low voltage control wiring in accordance with National Electric Codes.

1. Low voltage control wiring shall be minimum 18-gauge (or a heavier gauge as required for the installation), twisted pair, with PVC cover, Class 2 plenum-rated. Low voltage control wiring shall be run with no splices separate from any wiring above thirty (30) volts.

E. Control Panels: Provide control panels with suitable brackets for wall mounting, unless noted otherwise, for each control system. Locate panel adjacent to systems served. Mount center of control panels {60" - confirm} above finished floor or roof or as noted below.

1. Existing control panels may be re-used where applicable and available.

2. Interior: Fabricate panels of 16-gage furniture-grade steel, totally enclosed on four sides, with removable perforated backplane, hinged door and keyed lock, with manufacturer's standard shop- painted finish and color.

3. Exterior: 16-gauge 304 or 316 stainless steel NEMA 3 enclosure. Panel shall have hinged door, keyed lock, and integral. Provide hinged dead front inside panel when flush-mounted control and/or indicating devices are included in panel. Fiberglass or aluminum, as applicable, to be used when gases that are being used in the panel area are corrosive to stainless steel.
4. Provide UL-listed cabinets for use with line voltage devices.
5. All gauges and control components shall be identified by means of nameplates.
6. All control wiring shall be run neatly and orderly in open slot wiring duct with cover.
7. Control panel wiring shall be installed and distributed in the wire way to minimize routing of wiring within the control panel. Wire way construction to be the same as the associated control panel.
8. Complete control diagrams and wiring termination drawings shall be laminated and mounted in each control panel.

2.02 CONTROL VALVES

A. Control Valve Bodies

1. Existing control valves shall remain in use. B. Actuators

1. Existing DDC valve actuators shall be removed and replaced with new electronic actuators.
2. The Contractor is responsible for ensuring all valves open/close and/or modulate 0%-100% properly under the control of the BAS.
3. Acceptable Manufacturers: Belimo or approved equal

2.03 DAMPER ACTUATORS

1. Ambient Operating Temperature Limits: -10 to 150°F (-12.2 to 66 °C)
2. Two Position Electric Actuators: Line voltage with spring return
3. Electronic Actuators: Provide actuators with spring return for two-position (24v), 0-5 Vdc, 0-10 Vdc, 2-10Vdc, 4-20 mA, or PWM input (subject to restrictions) as required. Actuators shall travel full stroke in less than 90 seconds. Actuators shall be designed for a minimum of 60,000 full cycles at full torque and be UL 873 listed. Provide stroke indicator. Actuators shall have positive positioning circuit. Where two actuators are required in parallel or in sequence provide an auxiliary actuator driver. Actuators shall have current limiting motor protection. Actuators shall have manual override where indicated. Modulating actuators for valves shall have minimum rangeability of 40 to 1.
4. Close-Off Pressure: Provide the minimum torque required, and spring return for fail positioning (unless otherwise specifically indicated) sized for required close-off pressure. Required close-off pressure for two-way water valve applications shall be the shutoff head of associated pump. Required close-off rating of steam valve applications shall be design inlet steam pressure plus 50 percent for low-pressure steam, and 10 percent for

high pressure steam. Required close-off rating of air damper applications shall be shutoff pressure of associated fan, plus 10 percent.

5 Acceptable Manufacturers: Belimo or approved equal

2.04 GENERAL FIELD DEVICES

1 Provide field devices for input and output of digital (binary) and analog signals into controllers (BCs, AACs, ASCs). Provide signal conditioning for all field devices as recommended by field device manufacturers, and as required for proper operation in the system.

2 It shall be the Contractor's responsibility to assure that all field devices are compatible with controller hardware and software.

3 Field devices specified herein are generally 'two-wire' type transmitters, with power for the device to be supplied from the respective controller. If the controller provided is not equipped to provide this power, or is not designed to work with 'two-wire' type transmitters, or if field device is to serve as input to more than one controller, or where the length of wire to the controller will unacceptably affect the accuracy, the Contractor shall provide 'four-wire' type equal transmitter and necessary regulated DC power supply or 120 VAC power

4 For field devices specified hereinafter that require signal conditioners, signal boosters, signal repeaters, or other devices for proper interface to controllers, Contractor shall furnish and install proper device, including 120V power as required. Such devices shall have accuracy equal to, or better than, the

5 Accuracy: As stated in this Section, accuracy shall include combined effects of nonlinearity, nonrepeatability and hysteresis.

2.05 TEMPERATURE SENSORS (TS)

A. Room Temperature Sensors:

1. Shall be an element contained within a ventilated cover, suitable for wall mounting.

Provide insulated base. Following sensing elements are acceptable:

a. Provide LonMark certified device for communication with the communication network.

b. Room temperature sensors are to be provided with a cover to prevent accidental damage.

c. Sensing element shall be platinum RTD, thermistor, or integrated circuit, +/- 0.1°F

accuracy at calibration point.

d. Provide setpoint adjustment where indicated. The setpoint adjustment shall be a warmer/cooler indication that shall be scalable via the BAS.

e. Provide an occupancy override button on the room sensor enclosure where indicated.

This shall be a momentary contact closure

f. Provide current temperature indication via an LCD or LED readout where indicated.

g. Provide communication jack

B. VAV Zone Discharge Air Sensor

1. Provide flange mount 6' cable 10,000 ohm NTC thermistor with minimum 6" probe, +/-
0.2°F interchangeable at 77°F

a. Manufacture shall be TAC, Mamac or approved equal. C. Single-Point Duct

Temperature Sensor:

1. Shall consist of sensing element, NEMA 1 (NEMA 4 for outdoor applications) junction box for wiring connections and gasket to prevent air leakage or vibration noise.

a. Sensor probe shall be 304 stainless steel.

b. Sensing element shall be 1800 ohm thermistor.

2. Manufacture shall be TAC, Mamac or approved equal. D. Averaging Duct

Temperature Sensor:

1. Shall consist of an averaging element, junction box for wiring connections and gasket to prevent air leakage. Provide sensor lengths and quantities to result in one lineal foot of sensing element for each three square feet of cooling coil/duct face area.

a. *Sensing element shall be 1800 ohm thermistor. Manufacture shall be TAC, Mamac or approved equal.*

E. Outside air temperature/humidity sensor:

1. Sensor shall consist of a sensor, sun shield, utility box, and watertight gasket to prevent water seepage.

2. Sensing element shall be platinum RTD, thermistor, or integrated circuit, +/- 0.1°F
accuracy at 32°F calibration point.

3. Humidity sensor shall be +/- 3% RH with a +/-1% hysteresis, 0-100% range. F.

Differential Pressure Transmitters (DPT)

1. General Purpose - Water: Two-wire transmitter, 4-20 mA output with zero and span adjustments. Plus or minus 0.5% overall accuracy, 450 psig (3103 KPa) maximum static pressure rating, 200 psid maximum overpressure rating for 6 through 60 psid range, 450 psid for 100 through 300 psid range. Acceptable units shall be Kele & Associates Model
360 C or approved equal.

2. General Purpose Low Pressure/Low Differential Air: Generally for use in static measurement of space pressure or constant volume air velocity pressure measurement where the range is applicable.

a. General: Loop powered, two-wire differential capacitance cell type transmitter. b. Output: Two-wire 4-20 mA output with zero adjustment.

c. Overall Accuracy: Plus or minus 1%. d. Minimum Range: 0 in. w.c.

e. Maximum Range: 0.1, 0.25, or 0.5 inches w.c.

f. Housing: Polymer housing suitable for surface mounting.

g. Acceptable Manufacturers: Modus, Dwyer, Mamac or approved equal.

h. Static Sensing Element: Pitot-type static pressure sensing tips similar to Dwyer model A-301 and connecting tubing.

i. Range: Select for specified setpoint to be between 25% and 75% full-scale.

G. Differential Pressure Switches (DPS)

1. General Service - Air: Diaphragm with adjustable setpoint and differential and snap acting form C contacts rated for the application. Provide manufacturer's recommended static pressure sensing tips and connecting tubing

2. General Service - Water: Diaphragm with adjustable setpoint, 2 psig or adjustable differential, and snap-acting Form C contacts rated for the application. 60 psid minimum pressure differential range. 0°F to 160°F operating temperature range.

H. Current Switches (CS)

1. Clamp-On or Solid-Core Design Current Operated Switch (for Constant Speed Motor Status Indication)

a. Range: 1.5 to 150 amps. b. Trip Point: Adjustable.

c. Switch: Solid state, normally open, 1 to 135 Vac or Vdc, 0.3 Amps. Zero off state leakage.

d. Lower Frequency Limit: 6 Hz. e. Trip Indication: LED

f. Approvals: UL, CSA

g. Max. Cable Size: 350 MCM

h. Acceptable Manufacturers: Veris Industries H-708/908; Inc., RE Technologies SCS1150A-LED. Substitutions shall be allowed per Division 1.

2. Clamp-on or Solid-Core Wire Through Current Switch (CS/CR) (for Constant Speed Motors): Same as CS with 24v command relay rated at 5A @ 240 Vac resistive, 3A @ 240 Vac inductive, load control contact power shall be induced from monitored conductor (minimum conductor current required to energize relay 5A, max. rating of 135A). Acceptable Manufacturers shall be Veris Industries, Inc., Model # H938/735; or RE Technologies RCS 1150. Substitutions shall be allowed per Division 1.

a. Where used for single-phase devices, provide the CS/CR in a self-contained unit in a housing similar with override switch to Kele RIBX. Substitutions shall be allowed per Division 1.

3. Clamp-On Design Current Operated Switch for Variable Speed Motor Status

Indication a. Range: 1.5 to 135 Amps.

b. Trip Point: Self-calibrating based on VA memory associated with frequency to detect loss of belt with subsequent increase of control output to 60 Hz.

c. Switch: Solid state, normally open, 1 to 135 Vac or Vdc, 0.3 Amps. Zero off state leakage.

d. Frequency Range: 5-75 Hz e. Trip Indication: LED

f. Approvals: UL, CSA

g. Max. Cable Size: 350 MCM

h. Acceptable Manufacturers: Veris Industries, Inc. H-904. Substitutions shall be allowed per Division 1.

4. Clamp-On Wire Through Current Switch (CS/CR) (for Variable Speed Motors): Same as CS with 24v command relay rated at 5A @ 240 Vac resistive, 3A @ 240 Vac inductive, load control contact power shall be induced from monitored conductor (minimum conductor current required to energize relay 5A, max. rating of 135A). Acceptable manufacturer shall be Veris Industries, Inc., Model # H934. Substitutions shall be allowed per Division 1.

5. Variable Speed Status: Where current switches are used to sense the status for variable speed devices, the CT shall include on-board VA/Hz memory to allow distinction between a belt break and subsequent ramp up to 60 Hz, versus operation at low speed. The belt break scenario shall be indicated as a loss of status and the operation at low speed shall indicate normal status.

I. CURRENT TRANSFORMERS (CT)

1. Clamp-On Design Current Transformer (for Motor Current Sensing)

a. Range: 1-10 amps minimum, 20-200 amps maximum b. Trip Point:

Adjustable

c. Output: 0-5 VDC.

d. Accuracy: ±0.2% from 20 to 100 Hz.

e. Acceptable Manufacturers: KELE SA100 or approved equal

J. Electric Control Components

1. Control Relays: All control relays shall be UL listed, with contacts rated for the application, and mounted in minimum NEMA-2 enclosure for indoor locations, NEMA-4 for outdoor locations.

a. Control relays for use on electrical systems of 120 volts or less shall have, as a minimum, the following:

1) Provide blade style relays for socket/DIN mounting equipped with LED for coil proof, a flag for contact proof, a push to test button for momentary contact control and an override lever to hold the contacts in the ON position.

2) Coil rated for 0.9 watts DC, 1.2VA (60Hz) AC@25C.

3) Acceptable Manufacturers: Veris Industries VMD Series or approved equal

2. Control Transformers:

a. Furnish and install control transformers as required. Control transformers shall be machine tool type, and shall be US and CSA listed. Primary and secondary sides shall be fused in accordance with the NEC. Transformer shall be proper size for application, and mounted in minimum NEMA-2 enclosure.

b. Control Transformers shall have a local disconnect to disconnect power on the primary side of the transformer to service the transformer or secondary loads.

3. Time Delay Relays (TDR):

a. TDRs shall be capable of on or off delayed functions, with adjustable timing periods, and cycle timing light. Contacts shall be rated for the application with a minimum of two (2) sets of Form C contacts, enclosed in a dustproof enclosure.

K. Nameplates And Labeling

1. Panel Exteriors

a. Panels include control panels, interface panels, contactor panels, variable frequency drives, motor starters, etc.

b. Provide engraved phenolic or micarta nameplates. Nameplates shall be 1/8 thick, black, with white center core, and shall be minimum 1" x 3", with minimum 1/4" high block lettering. Nameplates for devices smaller than 1" x 3" shall be attached to adjacent surface.

2. Panel Interiors

a. Mark all devices with a label of what is controlled. Do not cover any nameplate information of the device. Label may be mounted on the device or below the device.

b. Provide white ½" P-Touch strong adhesive tape labels with small 8 font black lettering.

3. Equipment

a. For controlled equipment not labeled clearly and consistently, provide engraved phenolic or micarta nameplates. Nameplates shall be 1/8 thick,

black, with white center core, and shall be minimum 1" x 3", with minimum 1/4" high block lettering. Nameplates for devices smaller than 1" x 3" shall be attached to adjacent surface.

4. Zone Sensors
   a. For all zone sensors and VAV box access locations, provide label with clear ½" P- Touch strong adhesive tape labels with 12 font black lettering. Label shall identify the VAV box number (i.e., "VAV-1"). Place label at the base of the room sensor, and on the ceiling access location for the VAV box so that the label is visible from the ground level.
   b. On the inside of the zone sensor cover, mark the VAV box number with a black marker.
   c. On the bottom of each VAV box, mark the VAV box number with a black marker so that the number is visible and legible from below the box at ground level.
5. All labels shall be consistent throughout the system including as-built drawings, system graphics, and sequences of operations.

L. TESTING EQUIPMENT

1. Contractor shall test and calibrate all signaling circuits of all field devices to ascertain that required digital and accurate analog signals are transmitted, received, and displayed at system operator terminals, and make all repairs and recalibrations required to complete test. Contractor shall be responsible for test equipment required to perform these tests and calibrations. Test equipment used for testing and calibration of field devices shall be at least twice as accurate as respective field device (e.g., if field device is +/-0.5% accurate, test equipment shall be +/-0.25% accurate over same range).

PART 3 EXECUTION

3.01 INSPECTION

A. Examine areas and conditions under which control systems are to be installed. Do not proceed with work until unsatisfactory conditions have been corrected.

3.02 INSTALLATION OF CONTROL SYSTEMS

A. General: Install systems and materials in accordance with manufacturer's instructions, roughing-in drawings and details shown on drawings. Install electrical components and use electrical products complying with requirements of National Electric Code and all local codes.

B. Main Control Air Piping: Remove and dispose of all pneumatic tubing and pneumatic devices.

C. Control Wiring and Conduits: The term "control wiring" is defined to include providing, installing and terminating cable/wire, conduit and miscellaneous materials as required for mounting and connection of electric and electronic control devices.
   1. Wiring System: Install complete wiring system for DDC systems. Conceal wiring except in mechanical rooms and areas where other conduit and piping are exposed. Installation of wiring shall generally follow building lines. Fasten flexible

conductors bridging cabinets and doors, neatly along hinge side, and protect against abrasion. Tie and support conductors neatly in accordance with National Electrical Code.

2. Conduit Systems
   a. Existing conduit systems may be used as long as it follows local codes and industry best practices.
   b. New conduit runs and connectors shall match existing installation materials and methods.
   c. Flexible Conduit may be used to connect to devices, but may not be longer than 2 feet in length.
3. Control Wiring Conductors: Install control wiring conductors, without splices between terminal points, color-coded. Install in neat workmanlike manner, securely fastened. Install in accordance with National Electrical Code.
4. Communication wiring, signal wiring and low voltage control wiring shall be installed separate from any wiring over thirty (30) volts. High voltage wiring shall enter the panel in a location that is separate from all low voltage wiring by at least 12 inches. Power wiring shall be run in the panel separate from any wiring less than 100 volts. Where signal wiring must be near power wiring it shall be run at right angles to power wiring. A disconnect shall be provided in each panel for the 120 volt power wiring. In addition each transformer shall be provided with a separate fused disconnect of proper size.
5. All WAN and LAN Communication wiring shall be labeled with a network number, device ID at each termination and shall correspond with the WAN and LAN system architecture and floor plan submittals.
6. New Conduits. Install all control wiring external to panels in electric metallic tubing or raceway. Installation of new conduits and wiring shall generally follow building lines. Provide compression type connectors. Install wiring in galvanized rigid steel conduit at all exterior locations and where subjected to moisture. Install in PVC Schedule 80 conduit if encased in concrete. All conduits penetrating partitions, walls or floors shall be sealed with a submitted and approved non-hardening putty material to prevent migration of air through the conduit system.
7. New Communication wiring. Communication wiring and low voltage control wiring may be run without conduit in concealed, accessible locations if noise immunity is ensured. Contractor will be fully responsible for noise immunity and rewire in conduit if electrical or RF noise affects performance. Accessible locations are defined as areas inside mechanical equipment enclosures, such as heating and cooling units, instrument panels etc.; in accessible pipe chases with easy access, or suspended ceilings with easy access. Installation of wiring shall generally follow building lines. Run in a neat and orderly fashion, bundled where applicable, and completely suspended (strapped to rigid elements or routed through wiring rings) away from areas of normal access. Tie and support

conductors neatly with suitable nylon ties. Conductors shall not be supported by the ceiling system or ceiling support system. Conductors shall be pulled tight and be installed as high as practically possible in ceiling cavities. Wiring shall not be laid on the ceiling or duct. Conductors shall not be installed between the top cord of a joist or beam and the bottom of roof decking.

8. Number-code or color-code conductors appropriately for future identification and servicing of control system. Code shall be as indicated on approved installation drawings.

D. Control Valves: Install so that actuators, wiring, and connections are accessible for maintenance. Where possible, install with valve stem axis vertical, with operator side up. Where vertical stem position is not possible, or would result in poor access, valves may be installed with stem horizontal. Do not install valves with stem below horizontal, or down.

E. Room Sensors: Mount sensors on walls. Where sensor is exposed to drafts in the wall, provide an insulation mounting plate.

F. Averaging Temperature Sensors: Cover no more than two square feet per linear foot of sensor length except where indicated. Generally where flow is sufficiently homogeneous/adequately mixed at sensing location, consult AE for requirements.

G. Relative Humidity Sensors: Provide element guard as recommended by manufacturer for high velocity installations. For high limit sensors, position remote enough to allow full moisture absorption into the air stream before reaching the sensor.

H. Differential Pressure Transmitters: Provide valve bypass arrangement to protect against over pressure damaging the transmitter.

I. Water Pressure Taps, Thermal Wells, Flow Switches, etc. shall be installed as required.

J. Flow Switches: Where possible, install in a straight run of pipe at least 15 diameters in length to minimize false indications.

K. Current Switches for Motor Status Monitoring: Adjust so that setpoint is below minimum operating current and above motor no load current.

L. Supply Duct Pressure Transmitters:

1. General: Install pressure tips with at least 4 'round equivalent' duct diameters of straight duct with no takeoffs upstream. Install pressure tips securely fastened with tip facing upstream in accordance with manufacturer's installation instructions. Locate the transmitter at an accessible location to facilitate calibration.

2. VAV System 'Down-Duct' Transmitters: Locate pressure tips approximately 2/3 of the hydraulic distance to the most remote terminal in the air system.

M. Cutting and Patching Insulation: Repair insulation to maintain integrity of insulation and vapor barrier jacket. Use hydraulic insulating cement to fill voids and finish with material matching or compatible with adjacent jacket material.

END OF SECTION 02 03 01

SECTION 02 04 01
DIRECT DIGITAL CONTROL SYSTEM FOR HVAC PART 1 GENERAL

1.01 DEFINITIONS

A. Algorithm: A logical procedure for solving a recurrent mathematical problem.

B. Analog: A continuously varying signal value (temperature current, velocity, etc.).

C. Application Specific Device: A device that is furnished with a pre-established built in application that is configurable but not re-programmable.

D. Binary: A two-state system where an "ON" condition is represented by a high signal level and an "OFF" condition is represented by a low signal level.

E. Control Wiring: This includes conduit, wire, and wiring devices to install complete HVAC control systems, including motor control circuits, interlocks, sensors, PE and EP switches, and like devices. This also includes all wiring from node to node, and nodes to all sensors and points defined in the I/O summary shown on drawings or specified herein, and required to execute the sequence of operation. Does not include line voltage power wiring.

F. Diagnostic Program: Machine-executable instructions used to detect and isolate system and component malfunctions.

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

H. Gateway: A device that contains an input/output (I/O) software driver to translate input data from one format to output data in a second format.

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

J. HVAC Control Systems: The complete LONWORKS® control system, comprising the user interface and routers, gateways, repeaters, nodes, the operator workstation, software, portable operator terminals, network communications wiring and raceways, and required field hardware, etc.

K. Integration: Establishing communication between two devices through the use of a gateway. L. Interoperable: Establishing communication between two devices through the use of a common protocol and without the use of any gateways.

M. LonTalk : Open communication protocol developed by the Echelon Corporation.

N. LonWorks®: The overall communications technology for control systems developed by Echelon Corporation. The technology employs routers, gateways, bridges, and multimedia transceivers to permit topology and media- independent control solutions.

O. LonMaker® Turbo: An integration network management tool that provides graphical design, commissioning, and maintenance for LonWorks networks. It provides binding with automatic connection-type selection and device configuration and testing.

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

Q. LonMarked - device has been certified for compliance with LonMark standards by the LonMark association.

R. LonWorks® Application Specific Nodes (LASN) - a networked device or node that contains a complete, configurable application that is specific to a particular task.

S. LonWorks® Programmable Nodes (LPN) - a programmable control product that incorporates solid-state components based upon the Neuron® chip to perform control loops or functions. The application in the controller is custom software produced by the integrator specifically for the project.

T. LonWorks® Single Point Nodes (LSPN): devices such as temperature and humidity sensors, that have an on-board Neuron microprocessor and network interface allowing them to communicate on the LonWorks network.

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

V. Node: A LonWorks device with a neuron chip and LonTalk transceiver.

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

X. Operator Workstation (OW): The OW consists of a high-level processing personal computer that provides graphic user interface to network.

Y. Peripheral: Input/Output (I/O) equipment used to communicate to and from the computer and make hard copies of system outputs and magnetic files. Peripherals include CRTs, printers, hard drives, disk drives, and modems, etc.

Z. Portable Operations Terminal (POT): Permits remote operator interface to facilitate network management, node commissioning, diagnostics, and general operator interface with the installed LONWORKS® control system.

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

BB. Router: A device that routes messages destined for a node on another segment sub-net or domain of the control network. The device controls message traffic based on node address and priority. Routers shall also serve as communication links between powerline, twisted pair, fiber, coax, and RF media.

CC. Standard Network Variable Type: SNVT - The keys to the interoperability of the system and the standardization of the variables used to describe physical things to LonWorks.

DD. XIF: “External Interface File” contains the contents of the manufacturer’s product documentation.

1.02 DESCRIPTION

A. This section defines the Basic Materials and Methods used in the installation of LonWorks Control products to provide the functions necessary for control of the mechanical systems on this project.

B. Provide a Facility Management and Control System incorporating LonWorks, Direct Digital Control, equipment monitoring, and control consisting of microprocessor based plant control processors interfacing directly with sensors, actuators, and environmental delivery systems (i.e. HVAC units); electric controls and mechanical devices for all items indicated on existing drawings described herein including

dampers, valves, panels, sensing devices; a primary communications network to allow data exchange between microprocessor based devices. The system shall use EIA Standard 709.1, the LonTalk protocol, as the communication protocol from node to node and from nodes and operator workstations.

C. The system will consist of a flat, open architecture that utilizes the LonTalk protocol as the common communication protocol between all controlled and controlling devices, and LNS architecture for the definition of the device database. No other device database structure will be permitted. When necessary or desired, LonTalk packets shall be encapsulated into TCP/IP messages to take advantage of existing infrastructure or to increase network bandwidth. Any such encapsulation of the LonTalk protocol into IP datagram's shall conform to existing LonMark guidelines for such encapsulation. Systems that utilize non standard routing methods or hierarchal systems consisting of master or global controllers that poll and/or control less intelligent unitary controllers on a secondary bus will not be considered.

D. The system network shall be an Echelon Local Operating Network (LON). All nodes shall communicate with each other over one or more channels utilizing one of the LonMark approved transceivers (Type 1 – FTT-10A, Type 2 – Twisted Pair). There will be no consideration given to any system that does not use LonWorks as the primary communications network. System controllers shall be capable of sharing standard network variable data with other LonWorks based devices that utilize the same transceivers.

E. System controllers shall utilize either the Echelon's Neuron 3120® or Neuron 3150® or Neuron 5000 (required if available) microprocessor for network communications. "Hosted" controllers that utilize a 3rd party chip coprocessor for communications are not acceptable. Controllers shall be capable of accepting control programs downloaded over the LON.

F. The system installed shall be able to seamlessly connect devices other than HVAC throughout the building regardless of subsystem type, i.e. HVAC and lighting shall coexist on the same network channel without the need for gateways. These components shall share common software for network communications, configuration, time scheduling, alarm handling, history logging, custom programming and monitoring.

G. Gateways shall not be used unless authorized in writing by the owner. Use of a gateway requires submittal of the documentation as required by the owner or owner's representative. It is the intent of this specification that gateways be limited to integrating legacy systems where applicable. Acceptance of gateways is at the sole written discretion of the owner and/or owner's representative.

H. System Monitoring and Supervisory Control shall be provided through the installation of a GUI (Graphical User Interface) software application that supports a direct driver to the LonWorks LNS database and is fully compliant and compatible with the LonMaker Network Editor. The GUI workstation shall provide complete access to any point in the system at any time. The GUI shall be able to directly support LNS based discreet controller "plug-in" configuration modules as supplied by the device manufacturers. Remote Operator interfaces and configuration tools shall be supported in a client-server fashion.

I. The control system shall be able to accommodate multiple user operation. Access to the control system data should be limited only by operator password. Multiple users shall have access to all valid system data. All operator functions shall be recorded by an audit trait resident on the GUI platform.

J. The control system shall be designed such that mechanical equipment will be able

to operate under stand-alone control. In general, the operation of any controllers on the network shall not rely on any other controller for its functional operation. System controllers that require a master computer will not be considered. Function specific modules may be used to supplement the functionality resident in each controller. As such, in the event of a network communication failure or the loss of any other controller on the LON, the control system shall continue to independently operate under local control of the resident program stored in

nonvolatile memory as detailed herein. In such a case, each individual controller shall continue to perform basic functions until a network connection can be restored.

K. The documentation contained in this section and other contract documents pertaining to HVAC Controls is schematic in nature. The Contractor shall provide hardware and software necessary to implement the functions shown or as implied in the contract documents.

L. System configuration and monitoring shall be performed via a PC-type computer. Under no circumstances shall the PC be used as a control device for the network. It can be used for storage of data.

M. LonWorks components not supplied by the primary manufacturer shall be integrated to share common software for network communications, time scheduling, alarm handling, and history logging.

N. All system controllers shall utilize a peer-to-peer communications scheme to communicate with each other and with the PC-type monitoring computer(s).

O. Controllers shall contain non-volatile memory for storage of control programs, configuration, time schedules, and historical log data. All such data shall be retained in the event of a power failure. System controllers shall have an onboard, battery-backed real-time clock to ensure correct time-of-day operation following a power failure. Terminal Device Control Units controllers (VAV's, Heat Pumps, etc) shall be peers on the network and be able to synchronize data from plant controllers upon network power up.

P. History data logging and alarm detection shall be attained from all LonWorks controllers in the network, including third party LonWorks devices from alternate manufacturers. This data shall be monitored in the user interface software.

Q. Controllers shall use a software mechanism for network addressing and identification. It shall not be necessary to set physical network address switches on each controller.

R. System shall utilize LonMark defined standard network and command protocol Types (implicit messaging) for all data including, but not limited to, physical input and output values, input and output overrides, as well as general purpose input and output values used by the controller's control program. The utilization of explicit messaging or protocol converters shall not be acceptable unless approved in writing by the Owner prior to bid.

S. Individual products shall conform whenever possible to the LonMark Interoperability Standards. If products are not certified by the LonMark organization, product submittals must include the application source code, external interface file, resource files and complete documentation regarding all LonMark Objects, network variables and configuration properties supported by the device.

T. Products shall be provided with complete documentation. This shall include diagrams of all LonMark objects supported by the product as well as relevant technical specifications. Undocumented products must be tagged and

accepted by the Owner or Owner's Representative prior to installation. Do not install undocumented products without such acceptance.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURES

A. Schneider Electric TAC Vista and Xenta controls or approved equal.

2.02 NETWORKS

A. The system architecture shall as a minimum support the following levels.

1. 78kbyte FTT 10 channels for operating nodes.
2. 1.25 MB high speed bus to tie together multiple 78kbyte FTT 10 channels.
3. IP (via network interface card, or a LTA card & Lon to IP adaptor).
4. Access to a system workstation over the IP via standard web browser. B. Local

area network minimum physical and media access requirements:

1. Ethernet; IEEE standard 802.3.
2. Cable; 10 Base-T, UTP-8 wire, category 5.
3. Minimum throughput; 10 Mbps with the ability to increase to 100 Mbps.

2.03 NETWORK ACCESS

A. Remote Access to Installations on the Owner's Intranet:

1. The Owner shall provide the IP address(es) for remote access by the contractor to the control system via the Internet.

B. Remote Access to Installations on a Contractor-provided Intranet:

1. The Owner shall provide a connection to the Internet to enable this access via high-speed cable modem, asynchronous digital subscriber line (ADSL) modem, ISDN line or T1
Line with a minimum transmission speed of 512Kb/s Download & 256Kb/s Upload. The
Owner agrees to pay monthly access charges for connection and ISP.

2.04 PROGRAMMABLE NODES

A. General Requirements

1. LPNs shall be equipped with a 3120 Neuron® with co-processor or 3150 Neuron® microprocessor controller, or Neuron 5000 (flash or EEPROM) memory for general data processing, power supply, network transceivers.
2. Operating system software, custom operating sequence software and application programs shall be stored in programmable, non-volatile memory.
3. A LPN shall operate totally stand-alone and independent of a central computer for all specified control applications. Software shall include a complete operating system (OS), communications handler, point processing, standard control algorithms, and specific control sequences.
4. LPN's shall be a modular design with a separate wiring base. The base shall be din-rail mounted and provide terminal strips to allow field wiring to take place without the controller hardware being present. The controller hardware shall "plug-in" to the wiring base. The controller hardware shall be able to be

removed without removing wires or terminal strips.

5. LPN's shall include a battery or capacitor backed hardware calendar/clock device.

6. LPN packaging shall be such that complete installation and check-out of field wiring can be performed prior to the installation of electronic boards. The complete LPN including power supplies, etc., shall be factory-mounted, wired and housed in a NEMA 1 enclosure or as required by the location and local code requirements.

7. The LPN LonWorks ® network interface shall be a Type 1 transceiver. A communication connection shall be provided for attaching POT to node for downloading and troubleshooting applications.

8. The LPN shall provide for a RS232 PC connection.

9. The LPN shall provide for a RS232 modem connection.

10. The LPN shall provide for a connection to a local digital display unit.

11. LPNs shall include:

    a. Network service pin.

    b. Power On indicator light.

    c. Network communication indicator light. B. Input/Output Requirements

1. Binary Input (BI) Types Supported by the LPN: The BI function shall accept on-off, open-close, or other change of state (two state data) indications.

2. Analog inputs shall include, 0-10 Vdc, 0-20 mA, 4-20 mA, and 1,800 ohm (25ºC) or 10,000 ohm (25ºC) thermistor. Resolution of the Analog to Digital converter shall be a minimum of 10 bits.

3. LPNs shall include universal inputs that support either of the above describe inputs.

4. The LPN shall accommodate both binary and true analog outputs, 0-10Vdc. The resolution of the digital to analog converter shall be a minimum of 8 bits.

5. Binary outputs shall be capable of handling maintained as well as pulsed outputs for momentary or magnetic latching circuits.

6. The LPN shall accommodate expansion input/output units.

7. Enclosure shall be NEMA 3.

8. The LPN shall include all hardware and software required for communications with other nodes, PCs, and the OWS over the LonWorks LANs.

9. Programming shall provide for the control of network data traffic through the use of send on delta and time adjustable control of network broadcasts or polls.

PART 3 EXECUTION

3.01 SUMMARY OF WORK

A. Provide LonWorks based products that communicate on multiple channels to meet the functional specifications as indicated on the drawings and the dedicated product functional specifications and profiles specified in other sections.

B. Provide LonTalk routers as required to combine different communication channels onto a central field bus or as required to segment groups of Intelligent Devices and/or Control Units. Equip each router with a network transceiver on each network port

(inbound and outbound) as dictated by the network type (Type 1 - FTT, Type 2 - TP, Type 3 - PL, Type 4 - LP, Type
5 RF, and Ethernet).

C. The BAS Contractor shall utilize Performance Calculations to simulate all network traffic in advance to minimize field troubleshooting prior to installation of network control devices. Additional routers and/or repeaters shall be installed by the contractor to maintain acceptable network traffic.

D. The BAS Contractor shall utilize a LonWorks protocol analyzer tool to monitor network traffic on all installed control channels for a minimum of 24 hours per channel after final

installation. The BAS contractor shall reconfigure nodes and/or install additional routers as necessary to maintain traffic to less than 50% of channel bandwidth capacity.

E. Provide Intelligent Devices (ID's), Programmable Control Units (PCU's), and Terminal Device Control Units (TDCU's) as herein specified, as needed to perform functions indicated in the input output summaries and sequences of operation, and/or indicated on the HVAC drawings.

F. Provide wire, raceway systems, 24 DC and/or 24 AC power supplies and final connections to nodes provided by this contract and the following Control Units to meet or exceed all pertinent and applicable codes.

G. The BAS Contractor shall provide all controls, sequences of operation, and systems monitoring as required by these specifications and by the drawings. Provide all required devices, sensors, hardware, software, wiring, controllers, etc.

3.02 QUALITY ASSURANCE

A. General: The HVAC Control System shall be furnished, engineered, installed, tested and calibrated by factory certified technicians qualified for this work. The contractor shall have in place a support facility located within 45 miles of the project site with technical staff, spare parts inventory and all necessary test and diagnostic equipment. Factory trained technicians shall provide instruction, routine maintenance, and emergency service within 24 hours upon receipt of request.

B. BAS Contractor Qualifications:

1. The BAS contractor must be regularly engaged in the service and installation of TAC Vista LonWorks based systems for at least three (3) years. In addition, the contractor shall employ and assign to this project engineers and technicians that are regularly engaged in the service and installation of LonWorks based systems as specified herein.

2. The BAS contractor must have no less than three (3) similar demonstration projects, which have TAC Vista addressing HVAC Smoke Control (UL 864) systems and LonWorks based building systems as specified herein. The demonstration projects must be on-line and functional such that the Owners/User’s representative can observe the system in full operation.

3. The BAS contractor shall be an authorized representative in good standing of the manufacturer of the proposed hardware and software components. In addition, the contractor shall employ and assign to this project engineers and technicians that have experience with the proposed hardware and software components.

4. The BAS contractor shall have an office that is staffed with designers trained in integrating interoperable systems and technicians fully capable of providing LonWorks instruction and routine emergency maintenance service on

all system components.

5. The BAS contractor shall have in house capabilities to provide control strategies for whole building control. This includes HVAC and lighting applications.

C. Hardware and Software Component Manufacturer Qualifications

1. The manufacturer of the hardware and software components must be primarily engaged in the manufacture of LonWorks based systems as specified herein, and must have been so for a minimum of five (5) years.
2. The manufacturer of the hardware and software components as well as its subsidiaries must be a member in good standing of the Echelon Open Systems Alliance.
3. The manufacturer of the hardware and software components shall have an authorized representative capable of providing service and support as referenced in section B above, and must have done so for a minimum of three years.
4. The manufacturer of the hardware and software components shall have a technical support group accessible via a toll free number that is staffed with qualified personnel, capable of providing instruction and technical support service for networked control systems.

D. Manufacturers listed below are acceptable providers of hardware or software as listed solely if full compliance with the specifications is demonstrated to the satisfaction of the project engineer. Only products demonstrating full compliance with the specifications will be accepted whether or not the manufacturer's name appears below:

1. Field Level Controllers Manufacturers:
   a. TAC Xenta or approved equivalent
2. Operator Workstation/GUI software providers:
   a. TAC Vista or approved equivalent
3. Network Editing and commissioning software:
   a. LonMaker ONLY

E. Reference Standards

1. Control system components shall be new and in conformance with the following applicable standards for products specified:
   a. ANSI\EIA 709.1 (LonTalk Protocol)
   b. LonMark Certified (Version 3.1 Guidelines)
   c. UL 916 (Energy Management Equipment)
   d. UL 864/UUKL (Smoke Control) F. Products
1. Utilize standard components for all assemblies. Custom hardware, operating system, and utility software are not acceptable.
2. All products (PCU's, TDCU's and ID's) shall contain LonWorks networking elements to allow ease of integration of devices from multiple vendors.
3. All materials, equipment and software shall be standard components, regularly manufactured for this and other systems and custom designed for this project. All systems and components shall be thoroughly tested.

3.03 SUBMITTALS

A. General: Submit the following according to conditions of Contract and Specification sections.

In addition, provide the following:

1. Product data on all components used to meet the requirements of the specifications such as enclosures, network transceivers, XIF documentation, configuration parameter options, mounting details, power supplies, etc.
2. Provide the LonMark Profile version number the devices comply with.
3. Software documentation regarding the proposed PC operating system third party utilities and application programs, and the proposed application program for the Control Units.
4. Logical and physical diagrams for each channel indicating each node (control devices and ID's), node address (domain, subnet and group), channel type and router specifications.
5. Mechanical system served by the HVAC Control System. Indicate and Tag each input/output served by each Control Unit or Intelligent Device.
6. Submit 8 sets of submittals for review within 3 weeks of contract award. B. Shop Drawings

1. Shop drawings shall be 11 inch by 17 inch, landscape, bound on the left edge. *They shall be produced with latest industry standard tools. Organize the packages by building and floors. All submittal and as-built documents shall be delivered in standard X.pdf format.*
2. All text based documents and product data sheets shall be 8 ½ inch by 11 inch format bound on the left edge. To the maximum extent possible Adobe Acrobat shall be used to produce the documents in an X.pdf format.
3. Software files shall be submitted on fully labeled CDs that shall include a table of contents file in *X.pdf* format that provides a description of all of the files on the CD and or USB Drive.

C. Requirement for Shop Drawings

1. System Architecture Design Diagram:
   a. This is a riser diagram that shall show the IP layers and all of the field bus layers.
   translator that is connected to either the IP layer or any of the field busses.
   c. This diagram shall include the existing control system that is to be integrated into the common enterprise level system.
   d. Each component that is shown shall have a name that is representative of how it will be identified in the completed database and the manufacturer's name and model number. Example: Device A10: AHU1 Controller, XXX,

e The physical relationship of one component to another component shall reflect the proposed installation. Example: If AHU1 controller is the closest controller to the IP to LON router on the field bus, then this device shall be shown as the first device on the riser diagram just below the IP to LON router. *Note*: This requirement does not apply to the existing control system to be integrated except for the new components to be installed, such as the AH, TL and the ATS device. However, the relationship of these devices to the existing IP to LON router or Building Controller shall be clearly labeled

f. This diagram shall not include power supplies, sensors or end devices.

2 L yout Design Drawing for each control panel:

a The layout drawing shall be with all devices shown in their proposed

b All control devices shall be identified by name.

c All terminal strips and wire channels shall be shown and labeled

d. All control transformers shall be shown and labeled e. All 120 VAC receptacles shall be shown and labeled f. All IP connection points shall be shown and labeled

3. Air Flow Diagrams

a. Provide air flow diagrams that represent the controlled system. Identify all sensing devices and controlled devices, labeled consistently with the panel detailed drawings.

4. Wiring Design Diagram for each control panel.

a. The control voltage wiring diagram shall clearly designate devices powered by each control transformer. If the control devices use half-wave power, the diagram shall clearly show the consistent grounding of the appropriate power connection. All wire identification numbers shall be annotated on the diagram.

b. The LON wiring diagram shall clearly show the use of the daisy chain wiring concept, the order in which the devices are connected to the LON and the location of end of segment termination devices. All wire identification numbers shall be annotated on the diagram.

c. If shielded communication wiring is used, the grounding of the shield shall be shown.

d. The terminal strip wiring diagram shall identify all connections on both sides of the terminal strip. Wiring label numbers for all wiring leaving the control panel shall be annotated on the diagram.

5. Wiring Design Diagram for individual components (controllers, protocol translators, etc.): The wiring diagram for each component shall identify all I/O, power and communication wiring, and the locations on the terminal blocks to which the wires are landed. Example: Fan Status sensor is wired from terminals

5/6 on the controller to terminals 17 and 18 on the terminal strip.

6. Installation Design Detail for each I/O device.
   a. Include a drawing of the wiring details for each sensor and/or end device.
      1) For devices with multiple quantities a standard detail may be submitted. (*Note*: The standard detail drawing must be accompanied by a list of the locations where the devices will be installed.)

D. Format Requirements Format

1. Direct Digital Control System Hardware Technical Data.
   a. A complete bill of materials of equipment to be used indicating quantity, manufacturer and model number.
   b. Manufacturer's description and technical data for each unique device to include performance curves, product specification sheets and installation instructions. When a manufacturer's data sheet refers to a series of devices rather than a specific model, the data specifically applicable to the project shall be highlighted or clearly indicated by other means.
   c. This requirement applies to:
      1) Controllers
      2) Transducers/Transmitters
      3) Sensors
      4) Actuators
      5) Valves
      6) Relays and Switches
      7) Control Panels
      8) Power Supplies
      9) Batteries
      10) Operator Interface Equipment
2. An Instrumentation List for each system. a. The list shall be in a table format.
   b. Include name, type of device, manufacturer, model number and product data sheet number.
3. Binding Map
   a. LonMaker Turbo drawings shall be 11 inch by 17 inch, landscape, bound on the left edge. They shall be produced with Microsoft Visio. Organize the packages by building and floors. The map will not need to include the flow of data from devices to the presentation system.
4. HMI Graphic Pages:

1) Submit a sample HMI graphic page for each type of page described in the specification section on graphic pages.

3.04 CLOSEOUT DOCUMENTS AFTER COMPLETION AND COMMISSIONING

A. The following is a list of post construction turnover documentation that shall be updated to reflect any changes during construction and re-submitted as “As-Built”.
   1. Submit in accordance with requirements of Section 01 78 23.
   2. System architecture drawing.
   3. Layout drawing for each control panel.
   4. Wiring diagram for each control panel.
   5. LonMaker Turbo Drawing
   6. Wiring diagram for individual components.
   7. System flow diagram for each controlled system.
   8. Instrumentation list for each controlled system.
   9. Sequence of control.
   10. Binding map.

3.05 OPERATION AND MAINTENANCE MANUALS

A. Submit in accordance with Section 01 78 23 Operation and Maintenance Data. B. Include but do not limit to the following documentation:

1. Network Management Software User Manual specific to each tool package provided.

2. Maintenance Instructions: Document all maintenance and repair/ replacement procedures.
   Provide ordering number for each system component, and source of supply. Provide a list of recommended spare parts needed to minimize downtime.

3. Documentation of network variables, network node configurations, priority interrupts, node binding, addressing structure, etc.

3.06 INSTRUCTION OF OWNER OPERATING PERSONNEL

A. Conform to all requirements of Section 01 79 00 Demonstration and Training.

3.07 COMMISSIONING

A. Conform to all requirements of Section 23 08 05 Commissioning of Direct Digital Control
Systems.

3.08 OWNERSHIP OF PROPRIETARY MATERIAL

A. The Owner shall retain all rights to any and all software and hardware used for this project.

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 the Owner as defined by the manufacturer's licensing agreement. Standard language protecting the manufacturer's rights to disclosure of Trade Secrets contained within such software is acceptable.

C. The licensing agreement shall not preclude the use of the software by individuals under contract to the Owner for commissioning, servicing or altering the system in the future. Use of the software by individuals under contract to the owner shall be restricted to use on the Owner's computers and only for the purpose of commissioning, change control, servicing, or altering the installed system.

D. All project developed software, files and documentation shall become the property of the
Owner. These include but are not limited to:

1. Server and workstation software
2. Application programming tools
3. Configuration tools
4. Network diagnostic tools
5. Addressing tools
6. Application files
7. Configuration files
8. Graphic files

9. Report files
10. Graphic symbol libraries
11. All documentation
12. All licensing

3.09 WARRANTY

A. Reference Section 01 78 36 Warranties.

B. The HVAC Control System shall be free from defects in workmanship and material under normal use and service. If within eighteen (18) months from the date of substantial completion, the installed equipment is found to be defective in operation, workmanship or materials, the building systems contractor shall replace, repair or adjust the defect at no cost.

C. The warranty shall extend to material that is supplied and installed by the Contractor.

Material supplied but not installed by the Contractor shall be covered per the above to the extent of the product only. Installation labor shall be the responsibility of the trade contractor performing the installation.

D. All corrective software modifications made during warranty service periods shall be updated on all user documentation and on user and manufacturer archived software disks.

3.010 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Do not install electronic hardware in the project until non-condensing environmental conditions have been established. Products installed in violation of this request will be replaced at no additional cost to the project.

B. Coordinate storage requirements for factory mounted terminal control units on air terminal devices, air handling units or other packaged control equipment. Do not store control units on site in non-conditioned areas.

C. Factory-Mounted Components: Where control devices specified in this section are indicated to be factory mounted on equipment, arrange for shipping control devices to unit manufacturer.

END OF SECTION 02 04 01

SECTION 02 05 01
DIRECT DIGITAL CONTROL SOFTWARE PART 1
GENERAL

1.01 SECTION INCLUDES

A. System Software
B. Programming Description
C. Control Algorithms
D. Energy Management Applications
E. Password Protection
F. Alarm Reporting
G. Trending
H. Data Acquisition and Storage
I. Dynamic Color Graphics

1.02 DESCRIPTION OF WORK:

A. Fully configure systems and furnish and install all software, programming and dynamic color graphics for a complete and fully functioning system as specified.

1.03 LICENSING

A. Include licensing for all software packages at all required workstations.

B. All operator interfaces, programming environment, networking, database management and any other software used by the Contractor to install the system or needed to operate the system to its full capabilities shall be licensed and provided to the Owner.

C. All software should be available on all Operator Workstations or CSSs provided, and on all Portable Operator Terminals. Hardware and software keys to provide all rights shall be installed on all workstations. At least 2 sets of CDs shall be provided with backup software for all software provided, so that the Owner may reinstall any software as necessary. Include all licensing for workstation operating systems, and all required third-party software licenses.

D. Provide licensing and original software copies for each OWS or CSS.

E. Provide licensing and original software copies for each remote graphic workstation. Licenses for remote graphic workstations shall allow for access to any site and shall not be restricted to accessing only the LANs included in this project.

F. Upgrade all software packages to the release (version) in effect at the end of the Warranty Period.

PART 2 PRODUCTS

2.01 GENERAL

A. Provide a LonWorks based control platform to comply with ANSI/EAI 709.1

B. Software shall be Schneider Electric TAC Vista or approved equivalent.

PART 3 EXECUTION

3.01 SYSTEM SOFTWARE

A. Command & Operating Software

1. As a minimum, the menu driven command and operating software shall permit the operator to perform the following tasks with a minimum knowledge of the HVAC Control System provided and basic computing skills.
   a. Configure the network.
   b. Create control sequences.
   c. Graphical interface to systems.
2. Provide additional third party software to permit the operator to manage hard drive files such as access, delete, copy, modify, etc. The package shall be object oriented and permit the user to manage directories upon boot-up. The file management software shall organize directories and sub-directories using files, file folder objects.
3. On-Line Help. Provide a context sensitive, on-line help system to assist the operator in operation and editing of the system. On-line help shall be available for all applications and shall provide the relevant data for that particular screen. Additional help information shall be available through the use of hypertext.
4. Security. Each operator shall be required to log on to that system with a user name and password in order to view, edit, add, or delete data. System security shall be selectable for each operator. The system supervisor shall have the ability to set passwords and security levels for all other operators. Each operator password shall be able to restrict the operator's access for viewing and/or changing each system application, full screen editor, and object. Each operator shall automatically be logged off of the system if no keyboard or mouse activity is detected. This auto log-off time shall be set per operator password. All system security data shall be stored in an encrypted format.
5. System Diagnostics. The system shall automatically monitor the operation of all HVAC control workstations, printers, modems, network connections, and nodes. The failure of these devices shall be annunciated to the operator.
6. Reports and Logs. Provide a reporting package that allows the operator to select, modify, or create reports. Each report shall be definable as to data content, format, interval, and date. Report data shall be archived on the hard disk for historical reporting. Provide the ability for the operator to obtain real time logs of designated lists of objects. Reports and logs shall be stored on the PC hard disk in a format that is readily accessible by other standard software applications including spreadsheets and word processing. Reports and logs shall be readily printed to the system printer. Data shall be able to transferable to other software packages so as to create custom reports.
7. Web Browser Access. The DDC system shall provide total integration of the facility infrastructure systems with user access to all system data, either locally over a secure Intranet within the building or by remote access by a standard Web Browser over the Internet.

B. Graphical Object-Oriented Programming Software

1. The system shall include a graphical object-oriented programming function which shall be used to create all control sequences utilized in LONWORKS® programmable nodes. The graphical object-oriented programming function shall provide programming elements to be connected together to create a logic diagram. The graphical object- oriented programming function shall include

elements for mathematical, logical, timing, setpoint, display and input/output functions to create logic diagrams that represent sequences of operation for LPNs.

2. Program elements shall be able to be combined into a custom template that can then be used as a standard function.

3. Program checkout and debug tools shall include display of real-time and/or simulated system variables and inter-object data on the programming screens. The user shall be able to assign fixed or variable values to inputs during the dynamic debugging of the control sequence.

4. The graphical programming tools shall provide the ability to print I/O lists, lists of standard network variables and lists of all parameters to be viewed by the HMI.

5. The programming software shall reside on each POT and OWS server for programming and/or configuring each model of LPN on the project. The applications shall be downloaded and executed at the appropriate nodes. The software shall allow for updated applications via the network from the OWS.

6. DDC programs are to be provided to meet the control strategies as called for in the sequence of operation sections of these specifications. Each LPN shall have available a full library of DDC algorithms, intrinsic control operators, arithmetic, trigonometric, logic, Proportional Control, Proportional plus Integral (PI), Proportional plus Integral plus Derivative (PID), and relational operators for implementation of control sequences including 2-position, floating, standard I/O and counter inputs, time based data, curve fit function, psychometric functions, integration.

7. All DDC setpoints, gains, and time constants associated with DDC programs shall be available to the operator for display and modification via the POT, DDU or OWS interface.

C. Library of Applications: A library of control, application, and graphic objects shall be provided to enable the creation of applications and user interface screens. Provide the capability to cut & paste objects and libraries into applications for a node/system. Applications are to be created by selecting the desired control objects from the library, dragging or pasting them on the screen, and linking them together, using a built-in graphical connection tool. Completed applications may be stored in the library for future use. Graphical User Interface screens shall be created in the same fashion. Data for the user displays is obtained by graphically linking the user display objects to the application objects to provide “real-time” data updates. Any real-time data value or object property may be connected to display its current value on a user display. Systems requiring separate software tools or processes to create applications and user interface display shall not be acceptable.

D. Provide integral trend-logging presentation in the programming screen.

E. Print capability, with page break reference tags to allow down to 8 ½”x 11” size paper

F. Off-line simulations (step function, continuous run function, simulation of external inputs)

G. Dynamic presentation of logic in on-line state (all intermediate values) H. Text to logic screens

I. Memory monitoring

J. Power cycle restart function

K. Run-time capability

L. Calculator objects, (basic stuff), including if-then-else, log, ln, exp, and trig functions.

M. Recognize standard network variable type data (nvi) and create network variables to put on the network (nvo)

N. Programming Objects

1. Provide the capability to copy objects from the supplied libraries, or from a user-defined library to the user's application. Objects shall be linked by a graphical linking scheme by dragging a link from one object to another. Object links shall support one-to-one, many- to-one, or one-to-many relationships. Linked objects shall maintain their connections to other objects, regardless of where they are positioned on the page and shall show link identification for links to objects on other pages for easy identification.

2. Configuration of each object shall be done through the object's property sheet using fill- in the blank fields, list boxes, and selection buttons. Use of custom programming, scripting language, or a manufacturer-specific procedural language for configuration shall not be accepted.

3. The software shall provide the ability to view the logic in a monitor mode. When on-line, the monitor mode shall provide the ability to view the logic in real time for easy diagnosis of the logic execution. When off-line (debug), the monitor mode shall allow the user to set values to inputs and monitor the logic for diagnosing execution before it is applied to the system (step function and run mode, integral trend logging).

4. The system shall support object duplication within the Owner's database. An application, once configured, can be copied and pasted for easy re-use and duplication. All links, other than to the hardware, shall be maintained during duplication.

O. Object Libraries

1. A standard library of object function blocks shall be included for development and setup of application logic, user interface displays, system services, and communication networks.

2. The function blocks in this library shall be capable of being copied and pasted into the user's database and shall be organized according to their function. In addition, the user shall have the capability to group objects created in their application and store the new instances of these objects in a user-defined library.

3. Start-Stop Time Optimization Object. Provide a start-stop time optimization object to provide the capability of starting equipment just early enough to bring space conditions to desired conditions by the scheduled occupancy time. Also, allow equipment to be stopped before the scheduled un-occupancy time just far enough ahead to take advantage of the building's "flywheel" effect for energy savings. Provide automatic tuning of all start / stop time object properties based on the previous day's performance.

P. Application Specific Node Configuration software Tools

1. Provide application specific node configuration software tools that shall permit the individual LASN to be configured and commissioned with appropriate parameters. This software shall reside on the POT. Functionality shall include:

a. Recognize all Standard Configuration Parameters (SCPTs)

b. Provide capability for setting all Standard Configuration Parameters (SCPTs)

c. Translation capability for user defined configuration parameters d. Monitoring capability for nvo's from the nodes

e. Ability to set the values for nvi's to the nodes

Q. Network Management

1. LonMaker for Windows network management software tool shall be used to assign domain, subnet, and node addresses to nodes; configure all routers and repeaters; define network data connections between LONWORKS® device network variables, known as "binding;" and record binding data into node addressing tables, and create a database of all addressing and binding information for all nodes on the network.
2. Network management shall include the following services: browse all network variables on nodes; Attach, Detach, Manage, Add, Remove, and Replace nodes; plus transmission error off-line, on-line reporting.
3. The network management database shall be resident in the operator workstation server, ensuring that anyone with proper user name/password authorization has access to the network management database at all times.
4. The software shall have Client/server capability to allow multiple users ability to manipulate the database simultaneously.

R. Human-Machine Interface - Operator Workstation Software

1. The HMI shall be a client/server architecture to allow multiple client access to an Ethernet connected server. The workstation shall operate also as a stand-alone workstation/server.
2. The software shall enable an operator to interact with various devices including LONWORKS® nodes, recorders, input/output (I/O) systems, intelligent transmitters, and other field devices.
3. It shall provide the following functions:

   a. Calendar.

   b. Scheduling. c. Trending.

   d. Alarm monitoring and routing. e. Time synchronization.

   f. Time zone handling

   g. Integration of LONWORKS® controller data

   h. Object linking and embedding for process control (OPC) for connectivity to third party OPC compliant software/devices

   i. Color graphic display j. On-line plots

   k. Use Microsoft NT security

   l. System documentation generation m. Dynamic data exchange (DDE)

   n. Dispatch of a single time schedule to all programmable nodes

4. System Configuration. At a minimum, the HMI shall permit the operator to perform the following tasks, with proper password access:

a. Create, delete, upload, or modify control strategies. b. Add/delete objects to the system.

c. Tune control loops through the adjustment of control loop parameters. d. Enable or disable systems

e. Generate text file reports to a networked printer.

f. Select points to be alarmable and define the alarm state.

g. Configure alarms to be sent to Microsoft Windows mail client

h. Select points to be trended over a period of time and initiate the recording of values automatically.

i. Provide different levels of security to every object in the HMI database

j. Modify and create users with passwords and access levels and also be able to use currently logged on users and passwords

5. Event Alarm Notification and Actions

a. The HMI software shall provide alarm recognition, storage, routing, management, and analysis.

b. The HMI software shall be able to route any alarm condition to any defined user location whether connected to a local network or remote via dial-up, telephone connection, or wide-area network.

c. Alarm generation shall be selectable for annunciation type and acknowledgement requirements including, but not limited to:

1) To alarm.

2) Return to normal.

3) To fault.

d. Provide for the creation of alarm classes for the purpose of routing types and or classes of alarms, i.e.: security, HVAC, Fire, etc.

e. Provide timed (schedule) routing of alarms by class, object, group, or node.

f. Provide alarm generation from “runtime” and /or event counts for equipment maintenance. The user shall be able to reset runtime or event count values with appropriate password control.

g. Control equipment and network failures shall be treated as alarms and annunciated. h. Alarms shall be annunciated in any of the following manners as defined by the user:

1) Screen message text.

2) Email of the complete alarm message to multiple recipients. Provide the ability to route and email alarms based on:

3) Day of week.

4) Time of day.

5) Recipient.

6) Pagers via paging services that initiate a page on receipt of email message.

7) Auto answer (at OWS) and auto dial (from node)

8) Graphic with flashing alarm object(s).

9) Printed message, routed directly to a dedicated alarm printer.

10) Audio messages.

i. The following shall be recorded by the OWS HMI software for each alarm (at a minimum):

1) Time and date.

2) Location (building, floor, zone, office number, etc.).

3) Equipment (air handler #, accessway, etc.).

4) Acknowledge time, date, and user who issued acknowledgement.

5) Number of occurrences

j. Alarm actions may be initiated by user defined programmable objects created for that purpose.

k. Defined users shall be given proper access to acknowledge any alarm, or specific types or classes of alarms defined by the user.

l. A log of all alarms shall be maintained by the OWS HMI and shall be available for review by the user.

m. Attach a graphic screen, text notes, and/or plant status report, to each alarm, as defined by user.

n. Repeat/nuisance alarms must have feature to be disabled, and a feature for monitoring disabled alarms.

o. The system shall be provided with a dedicated alarm window or console. This window shall notify the operator of an alarm condition, and allow the operator to view details of the alarm and acknowledge the alarm. An alarm notification window shall supersede all other windows on the desktop and shall not be capable of being minimized or closed by the operator. This window shall notify the operator of new alarms and un-acknowledged alarms.

p. The dedicated alarm window shall provide user selectable colors for each different priority of alarm.

6. Data Collection and Storage Requirements

a. The OWS HMI shall have the ability to collect data for any property of any object and store this data for future use.

b. The data collection shall be performed by objects, resident in the node, and if desired

OWS, shall have, at a minimum, the following configurable properties:

1) For interval logs, the object shall be configured for time of day, day of week and the sample collection interval.

2) For deviation logs, the object shall be configured for the deviation of a variable to a fixed value. This value, when reached, shall initiate logging of the object.

3) For all logs, provide the ability to set the maximum number of data stores for the log and to set whether the log shall stop collecting when full, or rollover the data on a first-in, first-out basis.

4) Each log shall have the ability to have its data cleared on a time-based event or by a user-defined event or action.

5) All log data shall be stored in a database in the OWS HIM and the data shall be accessed from a server (if the system is so configured) or a standard Web Browser.

6) Systems that cannot provide log data in HTML formats at a minimum shall not be acceptable.

7) The OWS shall have the ability to archive its log data either locally (to itself), or remotely to a OWS server. Provide the ability to configure the following archiving properties, at a minimum:

a. Archive on time of day.

b. Archive on user-defined number of data stores in the log (buffer size). c. Archive when log has reached its user-defined capacity of data stores.

d. Provide ability to clear logs once archived.

7. Audit Log

a. Provide and maintain an Audit Log that tracks all activities performed on the OWS HMI. Provide the ability to specify a buffer size for the log and the ability to archive log based on time or when the log has reached its user-defined buffer size. Provide the ability to archive the log locally to OWS HMI or to a server. For each log entry, provide the following data:

1) Time and date.

2) User ID.

3) Change or activity: i.e., change setpoint, add or delete objects, commands, etc.

8. Database Backup And Storage

a. The OWS shall have the ability to automatically backup its database. The database shall be backed up based on a user-defined time interval.

b. Shall have the ability to automatically complete full or partial backups; and have the ability to full or partial restore. Partial is defined as only items that have changed in the database.

c. Copies of the current database and, at the most recently saved database shall be stored in the OWS. The age of the most recently saved database is dependent on the user-defined database save interval.

9. Graphical Real-Time Displays. The HMI, shall at a minimum, support the following graphical features and functions:

a. Graphic screens shall be developed using any drawing package capable of generating and importing a GIF, BMP, DWG, DXF, or JPG file format. In addition to, or in lieu of a graphic background, the HMI shall support the use of scanned pictures.

b. Graphic screens shall contain objects for text, real-time values, animation, color spectrum objects, logs, graphs, HTML, or XML document links, schedule objects, hyperlinks to other URL's, and links to other graphic screens.

c. Modifying common application objects, such as schedules, calendars, and set points shall be accomplished in a graphical manner.

d. Commands to start and stop binary objects shall be done by clicking the selected object and selecting the appropriate command from the pop-up menu. Data entry may be typed or mouse entered.

e. Adjustments to analog objects, such as set points, shall be done by clicking the selected object and entering value or using a graphical slider to adjust the value.

f. The OWS shall be able to support multiple graphic objects at the same time. If tiled, then each graphical object shall be fully scalable or aspect locked.

g. Trend Displays (variable versus time) - A trend display shall show the values of points plotted versus time similar to a strip chart recorder. Eight tags shall be trended per trend. The HMI software shall provide real-time and historical trending (for data which had been logged). This may be achieved by either color graphic page display or an Microsoft excel based display.

h. Real-Time Trends - shall contain real-time data without consuming hard disk space.

i. Historical Trends Logs - A historical trend log display presents data stored on the computer's hard disk.

j. X-Y Plots (variable versus variable) - An x-y plot shall dynamically represent the real-time or historical relationship one variable plotted against another variable.

k. Automatic Generation - All trends and plots shall be self-generated and not require any programming by the user.

l. The HMI software shall provide dialog boxes and menu picks for configuring

trends and plots.

m. Any analog or binary data may be trended or plotted.

n. The software shall store pre-configured presentation of trends to facilitate operator call-up of trend log displays. It shall be possible to call up a trend log with pre- assigned data.

10. Graphics Builder - The HMI software shall provide a graphics builder.

a. Display Documentation - The graphics builder shall provide show, simulate, review, and document animation functions to allow the user to identify, diagnose, change, and document animation points on each display.

b. A library of vendor-supplied objects shall be included. These objects, widgets, and symbols must be continuously scalable. These items shall be editable by the user.

c. A library of animated graphic objects shall be included.

d. Animation - The Graphics Builder shall animate process graphics with real-time data from field devices.

e. Multi-State Color Animation shall be provided to change a graphic object's color from a palette of colors.

f. Alarm Color - Color animation for normal, alarm, and alarm acknowledged states for both analog and binary point tags shall be provided. The user shall define the foreground and background colors for each state.

g. Alarm Blink – Objects and text data shall blink based on alarm state and acknowledged state.

h. Text and Numeric Animation - The software shall display the numeric value of an analog point, text of a text point, and the descriptors of a binary point. Display Linking - The software shall provide a display linking function. Clicking the object associated with the link changes the display to a new user-defined display.

i. Pickable/Non-Pickable - The software shall enable active points to be selected with the mouse and accessed. It shall be possible to make a point non-pickable: the dynamic information shall be displayed, but the operator shall not be able to access a detail display, change the value, etc. based on security settings of the software.

j. Ability to open external executable files from button click k. Ability to open

HTML web pages from button click

l. Ability to view Microsoft Excel files from button click

3.02 SITE-SPECIFIC APPLICATION PROGRAMMING

A. Provide all database creation and site-specific application control programming as required by these Specifications, national and local standards and for a fully functioning system. Contractor shall provide all initial site-specific application programming and thoroughly document programming. Generally meet the intent of

the written sequences of operation. It is the Contractor's responsibility to request clarification on sequence issues that require such clarification.

B. All site-specific programming shall be fully documented and submitted for review and approval, both prior to downloading into the panel, at the completion of functional performance testing, and at the end of the warranty period.

C. All programming, graphics and data files must be maintained in a logical system of directories with self-explanatory file names. All files developed for the project shall be the property of the Owner and shall remain on the workstation(s)/server(s) at the completion of the project.

3.03 PASSWORD SETUP

A. Set up the following password levels to include the specified capabilities at a minimum:

1. Level 1: (Owner's BAS Administrator)
   a. Level 2 capabilities
   b. View, add, change and delete user names, passwords, password levels
   c. All unrestricted system capabilities including all network management functions.
2. Level 2: (Programmer)
   a. Level 3 capabilities
   b. Configure system software
   c. Modify control unit programs d. Modify graphic software
   e. Essentially unrestricted except for viewing or modifying user names, passwords, password levels
3. Level 3: (Senior HVAC Technician)
   a. Level 4 capabilities
   b. Override output points c. Change set points
   d. Change equipment schedules
   e. Exit BAS software to use third party programs
4. Level 4: (Junior HVAC Technician)
   a. Level 5 capabilities
   b. Acknowledge alarms
   c. Temporarily override equipment schedules
5. Level 5: (HVAC Technician Trainee)
   a. Display all graphic data b. Trend point data

B. Contractor shall assist Owner's operators with assigning user names, passwords and password levels.

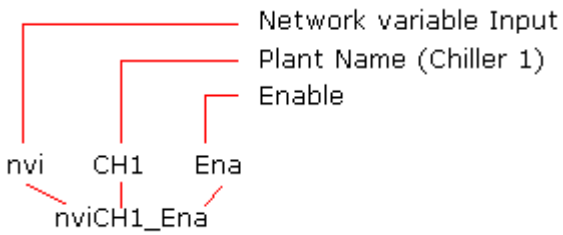
3.04 POINT PARAMETERS

A. The Owner naming nomenclature shall be adhered to from this document. B. There shall be two sets of naming nomenclature.

1. Naming for SNVT inputs to and from the controller, as seen in LonMaker for integration and binding to other LonWorks devices. This is regardless of who is performing the integration. LonMaker shall be used and the Owner shall own the database.

   a. The maximum amount of characters allowed in LonMaker is 16 b. The make-up of these points shall be:

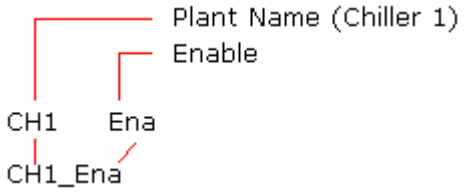
      1) For network variable inputs, “nvi” shall be the leading 3 characters.
      2) For network variable outputs, “nvo” shall be the leading 3 characters.
      3) This shall be followed by the plant name.
      4) This shall be followed by the point name abbreviated to a meaningful number of characters.
      5) Underlines shall be the only allowable characters to split the above up into meaningful, easy to read names.



2. Naming for internal data points such as setpoints (all of the following are not required to be bindable), system startup points and time schedule points.

   a. The make-up of these points shall be…

      1) For housekeeping and electrical input names, the plant name shall be the leading 3 characters.
      2) For housekeeping and electrical output names, the plant name shall be the leading 3 characters.
      3) This shall be followed by the plant name.
      4) This shall be followed by the point name abbreviated to a meaningful number of characters.
      5) Underlines shall be the only allowable characters to split the above up into meaningful, easy to read names.



3. T e correct type of SNVT shall be used for the electrical signal.
   a For example, an electrical reading for Amps shall use SNVT_amp.
   . For example, an electrical signal for temperature shall use SNVT_temp_p. It
   b is essential that all these LON rules are adhered to.
4. All necessary points to operate, override and tune the plant shall be exposed to the front end software.
   a. This includes:
      1) Inputs
      2) Outputs
      3) Setpoints
      4) PID loop tuning variables
      5) Overrides
5. The application programming software must be able to group points into meaning
   "Modules"
   a. All SNVT's must be in their own modules b. All temps must be in their own module
   c. Modules must be split into meaning groups
      1) Temps
      2) Setpoints
      3) Calibration
      4) Inputs
      5) Outputs
6. List of approved abbreviations'

a	OST_Rw	Outside Air Temp Raw
b	DAT_Rw	Discharge Air Temp Raw
c	MAT_Rw	Mixed Air Temp Raw
d	OST_Cv	Outside Air Temp Calculated
e	DAT_ Cv	Discharge Air Calculated Value

f. MAT_ Cv Mixed Air Temp Calculated Value

g. (X)_cmd physically command a point of control h. (X)_Sts Statius command a point of control

C. A list of all abbreviations shall be submitted for approval. The list shall be included in the engineering documents and are to be part of the final turnover document for the project.

D. Provide the following minimum programming for each analog input:

1. Name
2. Address
3. Engineering units
4. Offset calibration and scaling factor for engineering units
5. High and low alarm values and alarm differentials for return to normal condition
6. High and low value reporting limits (reasonableness values), which shall prevent control logic from using shorted or open circuit values.
7. Default value to be used when the actual measured value is not reporting. This is required only for points that are transferred across the primary controlling networks and used in control programs residing in control units other than the one in which the point resides. Events causing the default value to be used shall include failure of the control unit in which the point resides, or failure of any network over which the point value is transferred.

E. Provide the following minimum programming for each analog output:

1. Name
2. Address
3. Engineering units
4. Offset calibration and scaling factor for engineering units
5. Output Range
6. Default value to be used when the normal controlling value is not reporting. F.

Provide the following minimum programming for each digital input:

1. Name
2. Address
3. Engineering units (on/off, open/closed, freeze/normal, etc.)
4. Message and alarm reporting as specified
5. Totalization of on-time (for all motorized equipment status points), and accumulated number of off-to-on transitions.

G. Provide the following minimum programming for each digital output:

1. Name
2. Address
3. Output updating frequency
4. Engineering units (on/off, open/closed, freeze/normal, etc.)

5. Totalization of on-time (for all motorized equipment status points), and accumulated number of off-to-on transitions.
6. Default value to be used when the normal controlling value is not reporting.

3.05 TRENDS

A. Contractor shall coordinate with the Commissioning Authority on programming temporary trend sampling rates and permanent trend sampling rates. During the Functional Performance Testing period, commissioning sampling rates shall be enabled. Upon completion and acceptance of the commissioning, the Contractor shall reset sampling rates to the permanent rates.

B. Contractor shall establish and store trend logs. Trend logs shall be prepared for each physical input and output point, and all dynamic virtual points such as set points subject to a reset schedule, intermediate set point values for cascaded control loops, and the like as directed by the Owner.

C. The Owner shall analyze trend logs of the system operating parameters to evaluate normal system functionality. Contractor shall establish these trends and ensure they are being stored properly.

1. Data shall include a single row of field headings and the data thereafter shall be contiguous. Each record shall include a date and time field or single date stamp. Recorded parameters for a given piece of equipment or component shall be trended at the same intervals and be presented in a maximum of two separate 2-dimensional formats with time being the row heading and field name being the column heading.

D. Sample times indicated as COV ( ) or change-of-value mean that the changed parameter only needs to be recorded after the value changes by the amount listed. When output is to the trending file, the latest recorded value shall be listed with any given time increment record. The samples shall be filled with the latest values also if the points include different time intervals. If the BAS does not have the capability to record based on COV, the parameter shall be recorded based on the interval common to the unit.

E. Trending intervals or COV thresholds shall be dictated by the Owner upon system start-up.

F. The Contractor shall demonstrate functional trends as specified for a period of 30 days after successful system demonstration before final acceptance of the system.

3.06 TREND GRAPHS

A. Prepare controller and workstation software to display graphical format trends. Trended values and intervals shall be the same as those specified

B. Lines shall be labeled and shall be distinguishable from each other by using either different line types, or different line colors.

C. Indicate engineering units of the y-axis values; e.g. degrees F., inches w.g., Btu/lb, percent open, etc.

D. The y-axis scale shall be chosen so that all trended values are in a readable range. Do not mix trended values on one graph if their unit ranges are incompatible.

E. Trend outside air temperature, humidity, and enthalpy during each period in which any other points are trended.

F. All points trended for one HVAC subsystem (e.g. air handling unit, chilled water system, etc.) shall be trended during the same trend period.

G. Each graph shall be clearly labeled with HVAC subsystem title, date, and times.

3.07 ALARMS

A. Override Alarms: Any point that is overridden through the override feature of the graphic workstation software shall be reported as a Level 3 alarm.

B. Analog Input Alarms: For each analog input, program an alarm message for reporting whenever the analog value is outside of the programmed alarm limits. Report a 'Return-to- Normal' message after the analog value returns to the normal range, using a programmed alarm differential. The alarm limits shall be individually selected by the Contractor based on the following criteria:

1. Space temperature, except as otherwise stated in sequence of operation: Level

   3 a. Low alarm: 64 F

   b. Low return-to-normal: 68 F

   c. High alarm: 85 F

   d. High return-to-normal: 80 F

2. Controlled media temperature other than space temperature (e.g. AHU discharge air temperature, steam converter leaving water temperature, condenser water supply, chilled water supply, etc.): Level 3 (If controlled media temperature set point is reset, alarm set points shall be programmed to follow set point)

   a. Low alarm: 3 F below set point

   b. Low return-to-normal: 2 F below set point c. High alarm: 3 F above set point

   d. High return-to-normal: 2 F above set point. e. AHU mixed air temperature: Level 4

   f. Low alarm: 45 F

   g. Low return-to-normal: 46 F

   h. High alarm: 90 F

   i. High return-to-normal: 89 F

3. Duct Pressure:

   a. Low alarm: 0.5"w.g. below set point

   b. Low return-to-normal: 0.25"w.g. below set point c. High alarm: 0.5"w.g. above set point

   d. High return-to-normal: 0.25"w.g. above set point

4. Space humidity:

   a. Low alarm: 35%

   b. Low return-to-normal: 40%

   c. High alarm: 75%

   d. High return-to-normal: 70%

C. HOA Switch Tampering Alarms: The Sequences of Operation are based on the presumption that motor starter Hand-Off-Auto (HOA) switches are in the 'Auto' position. If a motorized equipment unit starts without a prior start command from the FMS, (as sensed by status sensing device), then FMS shall perform the remaining sequence as specified. BAS shall also enunciate the following Level 5 alarm message if status indicates a unit is operational when the run command is not present:

1. DEVICE XXXX FAILURE: Status is indicated on {the device} even though it has been commanded to stop. Check the HOA switch, control relay, status sensing device, contactors, and other components involved in starting the unit. Acknowledge this alarm when the problem has been corrected.

D. Maintenance Alarms: Enunciate Level 5 alarms when runtime accumulation exceeds a value specified by the operator

1. DEVICE XXXX REQUIRES MAINTENANCE. Runtime has exceeded specified value since last reset.

E. See requirements for additional equipment-specific alarms specified in Section 15958
Sequence of Operation.

3.08 GRAPHIC SCREENS

A. Reference Exhibit B for graphic screen requirements and sample graphic pages. B. Hierarchy:

1. The organization of graphic pages shall be from a global level down to a very detailed level through a series of links.

2. Linking shall allow the operator to move down the hierarchy, up the hierarchy and laterally within the hierarchy.

C. Hierarchy Outline

1. Site Plan Page: A visual representation of the site (map). One page or multiple linked pages depending on the size of the site plan.

   a. Link to individual building graphic pages. b. Display outdoor weather conditions.

2. Utility Management Page: A summary of data on the utility consumption for the site. a. Link up to the site plan.

   b. Display

      1) Utility consumption data.

      2) Demand data.

      3) Voltages, currents and power factors.

      4) Demand control actions currently in effect.

   c. Presenting the utility management data may require more than one graphic page to effectively report the data from multiple meters.

   d. Building Graphic Page: Typically a picture of the building. One page per building.

1) Link to floor plans within the building.
2) Link to central plant graphics where the plant serves the entire building.
3) Link to delivery systems if the delivery system serves the entire building
4) Link up to the site plan.

e. Floor Plan Page: This shall be a two dimensional thermo-graphic floor plan. A minimum of one page per floor per building is required. Where floor plans are large, multiple linked pages are required. For each control zone the value of the controlled parameters shall be displayed. This shall typically be temperature and relative humidity if relative humidity is a controlled variable, and CO_2.

1) Link up to the Building page.
2) Link up to the Site Plan page.
3) Link to any delivery system that serves the floor plan area (air handling unit is typical).
    a. Link to time schedules that affect the systems that serve the area
    b. Link to a Terminal Unit Summary page where multiple zones on the floor are served by unitary control devices such as VAVs or fan coil units.
    c. Individual control zones shall be identified.
    d. The location of terminal equipment serving each zone shall be shown.
    e. The location of sensors installed in the occupied space shall be shown.
    f. Where room numbers are available, they shall be shown.

f. Delivery System Page: A graphical representation of an air or water delivery system such as an air handling unit, roof top air handling unit, computer room air conditioning unit. One page for each delivery system.

1) If the Delivery System serves a specific floor area, link up to the Floor Area page.
2) Link up to the Building page.
3) Link up to the Site Plan page.
4) Link to the Central Plant page if the Delivery System is served by a Central Plant.
5) If the Delivery System supplies multiple terminal devices, link to a Terminal Unit Summary page.
6) Link to a Delivery System Configuration page.
7) The graphical representation of the equipment shall be 3-dimensional and represent the true physical characteristics of the installed system.

8) Display:

a. Process variables.

b. Commands to end devices.

c. Status of end devices.

d. Status of different modes (economizer on/off, mechanical cooling enabled/disabled, occupied/unoccupied).

e. Alarm points.

9) Link to any time schedules that affect the system operation.

10) Link to any pre-configured trend charts for the system.

j. Delivery System Configuration Page: On this page the Owner service provider operator is given access to the configuration parameters for the delivery system. Typically, this page presents data in a tabular format. The type of data on this page is not changed frequently, but the operator may wish to view it frequently. One page per delivery system is required.

1) Display:

a. Set Points.

b. Tuning Parameters.

c. Calibration Parameters.

d Timing Parameters.

e Application parameters.

f. Reset Schedules.

g Lead Lag Information

h Time Schedules.

2) Link p to the Delivery System page.

3) Link p to the Building page.

4) Link p to the Site Plan page.

k. Terminal Equipment Summary Page: On this page the dynamic data and set points that are associated with multiple terminal units are presented in a tabular format. The objective is to present a summary of terminal unit performance for an area of the facility. One page is required for each group of terminal units. In the tabular data, do not use less than 12 pt font size. Multiple linked pages may be used if there are a large number of terminals served by one delivery system.

1) Display in the table:

a. Process variables.

b. Set points for each process.

c. Command to each end device.

d. Status of each end device.

e. Load factors such as terminal load for a VAV terminal unit.

2) Link to the page for each Terminal Unit.

3) Link up to the Delivery System page.

4) Link up to the Floor Plan page.

5) Link up to the Building page.

6) Link up to the Site Plan page.

l. Terminal Unit Page: A graphical representation of a terminal unit such as a VAV terminal or fan coil terminal. One page for each terminal unit.

1) Link up to the Terminal Summary page.

2) Link up to the Floor Plan page.

3) Link up to the Building page.

4) Link up to the Site Plan page.

5) The graphic representation of the equipment shall be 3-dimensional and shall represent the actual installed terminal unit (if the VAV does not have a fan, a fan should not be shown, etc.).

6) Display

a. Process variables.

b. Command to end devices.

c. Status of end devices.

d. Set points for each process.

e. Modes (auto, heat, cool, etc.).

f. Capacity indicators (terminal load, %heat, %cool, etc.).

g. Reset schedules.

h. Occupancy commands and status.

i. Alarm points.

3. For all points on a graphic page that are subject to being under manual or test mode, the display shall indicate when test mode or manual mode has been applied to the point.

4. Color Graphic Page Requirements

a. The sequence of control defines the buildings and all of the equipment items for which graphic pages shall be constructed as described above.

END OF SECTION 02 05 01

SECTION 02 06 01
DIRECT DIGITAL CONTROL NETWORK SERVERS AND OPERATOR WORKSTATIONS
PART 1 GENERAL

1.01 SECTION INCLUDES

A. Operator Workstations
B. Control System Servers
C. Portable Operator Terminal
D. Hand Held Operator Interface Devices
E. Printers

1.02 DESCRIPTION OF WORK

A. Furnish and install all Operator Interfaces and Control System Servers as required for the BAS functions specified. All computers shall be warranted by the manufacturer for a period of one year after final acceptance.

PART 2 PRODUCTS

2.01 CONTROL SYSTEM SERVER (CSS)

A. Provide Hewlett Packard or Dell rack mounted server *and rack* with a minimum two(2) Dual
Core Intel® Xeon® processors E5502 1.86Ghz, 64 bit, with up to 8MB L3 Cache. Include 8
GB RAM and minimum of two (2) 320GB SATA 3.0Gb/s with NCQ and 16mb DataBurst
Cache drives. Provide four (4) USB ports, two (2)100/1000 Base-T network cards. Provide a 48X CD- RW and a 16X max DVD+/-RW drive. Provide a minimum 19-inch Flat Panel LCD Monitor with Height Adjustable Stand, Active Matrix TFT, 1680 x 1050 Pixels.

B. Provide detachable keyboard with standard typewriter layout, function keys, and separate numeric keypad. Provide a USB wireless optical mouse and mouse pad with the system.

C. Provide one open serial port after configuration of the workstation to meet the requirements of the rest of these specifications.

D. Provide an uninterruptible power supply system providing battery backup for each operator workstation and peripheral devices. UPS shall protect against blackouts, brownouts, surges and noise. UPS shall include LAN port and modem line surge protection. UPS shall be sized for a 7-minute full load runtime, 23-minute ½ load runtime, with a typical runtime of up to 60 minutes. Transfer time shall be 2-4 milliseconds. UPS shall provide a 480-joule suppression rating and current suppression protection for 36,000 amps and provide 90% recharge capability in 2-4 hours. Suppression response time shall be instantaneous. UPS low voltage switching shall occur when supply voltage is less than 94 volts. UPS shall be provided with modem surge suppression and LAN port connections. Provide all software, cables, peripherals etc. for a complete system.

E. Workstation PC shall have the capability of changing serial port interrupt vectors and

IOBASE addresses through software.

F. Operating system for CSS shall be Microsoft® Windows® *Server 2008*. Provide Microsoft Office Professional 2010 and Microsoft Visio *(latest version compatible with TurboLon)*.

G. Provide network configuration tool, all programming applications, graphic creation tools and all other software required to configure and operate the system.

H. For CSSs that provide web services for presentation of data across the Internet, all Web components and services shall be installed with required licensing. CSS shall be configured to secure it to the extent practical inside the Local Supervisory LAN. CSS shall always function from behind a firewall provided either by the Owner network administrators in the case where they provide the LAN infrastructure, or by this contractor where the LAN is provided under this Division of the specifications.

I. Provide network card approved by BAS manufacturer to support Supervisory LAN communications (100/1000 Mbps Ethernet TCP/IP).

J. Provide 'PC Anywhere' software by Symantec Corporation and configure it to operate across the LAN and WAN.

K. Provide additional hardware, video drivers, etc., to facilitate all control functions and software requirements specified for the BAS.

L. Control System Server shall be placed *in the data room or as directed on-site by the COURT.*

2.02 OPERATOR WORKSTATION (OWS)

A. Provide personal computer (PC) with a minimum Dual Core Intel® processors 1.86Ghz, with up to 8MB L3 Cache. Include 8 GB RAM and minimum of two (2) 320GB SATA
3.0Gb/s with NCQ and 16mb DataBurst Cache drives. Provide four (4) USB ports, 100/1000 Base-T network card, Provide a 48X CD-RW and a 16X max DVD+/-RW drive. Provide a 22-inch Flat Panel LCD Monitor with Height Adjustable Stand, Active Matrix TFT, 1680 x 1050 Pixels.

B. Provide detachable keyboard with standard typewriter layout, function keys, and separate numeric keypad. Provide a USB wireless optical mouse and mouse pad with the system.

C. Provide one open serial port after configuration of the workstation to meet the requirements of the rest of these specifications.

D. Provide an uninterruptible power supply system providing battery backup for each operator workstation and peripheral devices. UPS shall protect against blackouts, brownouts, surges and noise. UPS shall include LAN port and modem line surge protection. UPS shall be sized for a 7-minute full load runtime, 23-minute ½ load runtime, with a typical runtime of up to 60 minutes. Transfer time shall be 2-4 milliseconds. UPS shall provide a 480-joule suppression rating and current suppression protection for 36,000 amps and provide 90% recharge capability in 2-4 hours. Suppression response time shall be instantaneous. UPS low voltage switching shall occur when supply voltage is less than 94 volts. UPS shall be provided with modem surge suppression and LAN port connections. Provide all software, cables, peripherals etc. for a complete system.

E. Workstation PC shall have the capability of changing serial port interrupt vectors and
IOBASE addresses through software.

F. Operating system for operator workstation shall be Microsoft Windows XP

Professional Edition. Provide Microsoft Office Professional 2010 and Microsoft Visio *(latest version compatible with TurboLon)* Software. All software shall be at least the latest version available as of the date of contract completion.

G. Provide network configuration tool, all programming applications, graphic creation tools and all other software required to configure and operate the system as specified.

H. For CSSs that provide web services for presentation of data across the Internet, all Web components and services shall be installed with required licensing. CSS shall be configured to secure it to the extent practical inside the Local Supervisory LAN. CSS shall always

function from behind a firewall provided either by the Owner network administrators in the case where they provide the LAN infrastructure, or by this contractor where the LAN is provided under this Division of the specifications.

I. Provide network card approved by BAS manufacturer to support Supervisory LAN communications (100/1000 Mbps Ethernet TCP/IP) for OWSs connected to the Local Supervisory LAN and network card or LANID where connected to the Primary Controller LAN.

J. Provide 'PC Anywhere' software by Symantec Corporation and configure it to operate across the LAN and WAN.

K. Provide additional hardware, video drivers, etc., to facilitate all control functions and software requirements specified for the BAS.

L. *Operator Workstations shall be placed in the telecom room or as directed on-site by the Superior Court.*

M. *DSL line shall be provided by the Superior Court and drops provided to the contractor at locations specified and/or field verified.*

2.03 PORTABLE OPERATORS TERMINAL (POT) / REMOTE WORKSTATION

A. Portable Operators Terminal shall support system management by connection to the controllers, by connection via the Internet, and by dial-up communications while serving as the remote workstation.

B. Minimum specifications- Provide one (1) notebook personal computer (PC) with Pentium Core Duo P8700 (2.53GHz, 3M L2 Cache, 1066MHz FSB) Processor) w/NVIDIA Quadro NVS 160M. Include 2.0GB , DDR2-800 SDRAM, 1 DIMM - Dual Channel memory and minimum 160GB/7200 RPM hard disk drive, 8X DVD +/- RW Drive. Provide a Wireless 802.11b/g/n internal WLAN, Type II and Type III PCMCIA slots, touch pad, rechargeable battery, and 110V power supply/charger.

C. Provide a 100/1000 LAN+56K internal LAN Card. D. Provide minimum 15.4" WXGA display.

E. Provide carrying case and extra battery.

F. Operating system for operator workstation shall be Microsoft® Windows® XP Professional, SP3. Provide Microsoft Office Professional 2007 and Microsoft Visio Professional 2007
Software.

G. Provide software, graphics and programming as specified.

H. Provide additional hardware, video drivers, etc., to facilitate all control functions and software requirements specified for the building automation system.

I. Provide all controller configuration and interface software and/or plug ins for all devices applicable. All shall be loaded and functional. Provide all required interface cables required to connect to all networks, routers, controllers, SDs etc.

J. Wherever a POT connection point is not provided accessible in the same room as the device controlled, contractor shall provide a wireless system to permit configuration, testing and operation from within the room. Wireless system shall have the range to reliably communicate with the most remote room

2.04 HAND-HELD OPERATOR INTERFACE DEVICES (HHD)

A. Provide a quantity of one (1) manufacturers standard hand held operating devices for connecting to controllers and thermostats. Capabilities of the HHD shall include the following as a minimum:

1. Display of physical and virtual point values.
2. Adjustment of setpoints and adjustable parameters.
3. Temporary override of commands and point values.
4. Temporary override of time schedules.
5. Display of alarm conditions and CU diagnostics.

B. HHD shall be fully portable, battery operated and shall not require external power connection. Display shall be LCD 40 character minimum.

C. If product line relies on third party IBM compatible computers or ANSI terminals for the HHD, provide palmtop types as approved by the manufacturer, with all necessary software fully configured, in the quantity required.

D. Provide all necessary cables for required connection to BCs, AAC/ASCs, gateways, enhanced zone sensors, etc.

E. Provide manufacturers standard battery charging device (as applicable) in same quantity as required for hand held device.

F. If hand held device is not provided with manufacturers standard product line, provide additional notebook computer to perform the same functions

2.05 DIGITAL DISPLAY UNIT (DDU) – LIQUID CRYSTAL DISPLAY

A. General Requirements.

1. The DDUs shall permit the project operating staff to:

a. Display point values b. Display parameters

c. Change time schedule elements d. List and acknowledge alarms

e. Monitor points in the system

f. Command points (manual overrides) of points g. Override input points (put inputs in test)

h. Read and check LonWorks variables on the network i. Password protected

j. Node configuration for Fan Coil and Rooftop Unit TCUs

2. DDU with the following components:

a. Liquid Crystal Display

b. Minimum 4x20 character

c. Pushbuttons for scrolling display and enter

d. Permanent mount or portable connection.

2.06 LON ROUTERS, REPEATERS AND TRANSCEIVERS

A. General

1. Equip each router with a network transceiver on each network port (inbound and outbound) as dictated by the network type (Type 1 - FTT, Type 2 - TP).
2. The network router shall be designed to route messages from a segment, sub-net, or domain in full duplex communication mode.
3. Routers shall utilize LonTalk® protocol transport, network, session layers to transparently route messages bound for a node address in another sub-net or domain.
4. Routers and repeaters shall be fully programmable and permit a systems integrator to define message traffic, destination, and other network management functions utilizing LONWORKS® software tool.
5. The routers and repeaters shall be capable of DIN rail or panel mounting and be equipped with status LED lights for Network traffic and power.
6. Provide a minimum of two Neuron 3120 or 3150 processors for use as the network router communication controller.

B. Ethernet IP Router

1. Equip each router with an Ethernet IP communication on one side and a LonTalk® transceiver Type 1 FTT or Type 2 - TP on the other side.
2. The network router shall be designed to route messages from a segment, sub-net, or domain in full duplex communication mode.
3. On Ethernet IP side, the router shall utilize Ethernet IP protocol transport to route messages.
4. On the LonTalk® side, the routers shall utilize LonTalk® protocol transport, network, and session layers to transparently route messages bound for a node address in another sub-net or domain.
5. Routers shall be fully programmable and permit a systems integrator to define message traffic, destination, and other network management functions utilizing LonWorks® software tool.
6. The routers shall be capable of DIN rail or panel mounting and be equipped with status LED lights for Network traffic and power.

C. Transceivers

1. Type 1 network transceiver, free topology, twisted pair: Provide a transformer isolated, twisted pair transceiver capable of mounting directly on a printed circuit board. The transceiver shall meet the following specifications:
   a. Meets LonMark™ Interoperability Association Standards.
   b. Differential Manchester encoded signaling for polarity insensitive network wiring. c. Transformer isolated for common mode rejection.
   d. 78kbs network bit rate up to distances of 2000 meters.

e. Free topology supports star, home run, multidrop and loop wiring topologies.

f. Complies with FCC and VDE requirements. g. UL recognized component.

2. Type 2 Network Transceiver, Twisted Pair: Provide a transformer isolated twisted pair transceiver capable of mounting directly on a printed circuit board. The transceiver shall meet the following specifications:

a. Meets LONWORKS® interoperability standards.

b. Differential Manchester encoded signaling for polarity insensitive network

wiring. c. Transformer isolation for common mode rejection.

d. 1.25Mbs network bit rate up to distances of 1000 meters. e. FCC and VDE

Level B requirements compliance.

f. UL recognized component.

2.07 HARDWARE LEVEL WEB SERVER (HLWS)

A. General Requirements

1. HLWS shall support Secure Socket Layer (SSL) connections to web clients utilizing 128- bit encryption.

2. HLWS shall be provided for human machine interface (HMI) to nodes, via standard web browsers over a local intranet or the Internet.

3. HLWS shall be installed on the LONWORKS® network to communicate to nodes via
Type 1 transceivers.

4. The HLWS shall have Ethernet connection and IP addressing to allow connection to intranet or Internet. Configuration settings shall be stored on the HLWS.

5. HLWS shall be non-PC based.

6. HLWS module shall “plug-in” to a standard wiring base for power and communication connections. The module shall be able to be removed without removing wires or terminal strips.

7. Operator password levels shall be set and used to control user rights and access.

8. The HTML based web pages shall be able to present trend logs, color graphics and alarms, which can be created, downloaded and maintained via a software tool.

9. The operator shall be able to view and change setpoints, view status and operating conditions.

10. The operator shall be able to activate and view trends.

11. The operator shall be able to view alarm status. The operator shall be able to read, acknowledge, block, and sort alarms.

12. Settings, like configuration and web pages, shall be stored in non-volatile (flash)
memory.

13. Provide serial and modem connections.

2.08 CENTERALIZED WEB SERVER (CWS)

A. Local connections shall be via an Ethernet LAN. Remote connections shall be via ISDN, ADSL, T1 or dial-up connection.

B. It shall be possible to provide access to all LONWORKS® nodes via a single connection to the Web Server.

C. The server shall provide the following functions, at a minimum:

1. CWS shall support Secure Socket Layer (SSL) connections to web clients utilizing 128- bit encryption.

2. Global Data Access: The server shall provide complete access to distributed data defined anywhere in the system.

3. Client management, including username/password

4. Handles acknowledgement of alarms

5. Handles reports, diagrams, and other documents

6. Handles events (historical logging)

7. Presentation of web-based color graphics, reading and writing of values.

8. The server shall accept time synchronization messages from trusted precision Atomic
Clock Internet sites.

2.09 WEB BROWSER CLIENTS

A. The system shall support web clients using a standard Web browser such as Internet Explorer™ or Google Chrome™.

B. The Web browser software shall run on Microsoft Windows platforms.

C. The Web browser shall provide the same view of the system, in terms of graphics, logs, alarms, and provide the same interface methodology as is provided by the HMI.

D. The Web browser client shall support at a minimum, the following functions:

1. User log-on identification and password shall be required. If an unauthorized user attempts access the log-on screen is re-displayed. Security using Java authentication and encryption techniques to prevent unauthorized access shall be implemented.

2. HTML programming shall not be required to display system graphics or data on a Web page. HTML editing of the Web page shall be allowed if the user desires a specific look or format.

3. Storage of the graphical screens shall be in the Web Server without requiring any graphics to be stored on the client machine.

4. Real-time values displayed on a Web page shall update automatically without requiring a manual “refresh” of the Web page.

5. Users shall have administrator-defined access privileges. Depending on the access privileges assigned, the user shall be able to perform the following:

a. Modify common application objects, such as set points, in a graphical manner.

b. Commands to start and stop binary objects shall be done by clicking or double clicking, the selected object and selecting the appropriate command from the pop-up menu.

c. View logs, charts, and trend reports

d. View and acknowledge alarms.

6. Loading of additional software at the web-client is not acceptable. This must be performed via upload from the web-server.

7. Graphic screens on the Web Browser client shall support hypertext links to other locations on the Internet or on Intranet sites, by specifying the Uniform Resource Locator (URL) for the desired link.

8. On-Line Help. Provide a context sensitive help system to assist the operator in operation and editing of the system. Help screens shall be available for all applications and shall provide the relevant data for that particular screen.

9. Security. Each operator shall be required to log on to that system with a user name and password in order to view, edit, add, or delete data.

   a. System security shall be selectable for each operator.

   b. The system administrator shall have the ability to set passwords and security levels for all other operators.

   c. Each operator password shall be able to restrict the operators' access for viewing and/or changing each system application, full screen editor, and object.

   d. Each operator shall automatically be logged off of the system if no keyboard or mouse activity is detected.

   e. All system security data shall be stored in an encrypted format.

   f. Each object in the HMI database must be able to have a security policy applied to it.

10. System Diagnostics. The system shall automatically monitor the operation of network connections and controllers. The failure of any device shall be annunciated to the operator.

11. DDE Server - The HMI software shall be able to communicate and exchange data with any Third Party DDE compliant application.

12. MICROSOFT REPORT GENERATION – The HMI software shall be able to seamlessly interact with Microsoft Office Products, including Excel, with no additional programming.

2.010 PRINTER

A. Provide 600x600 dpi, min 4 sheets per minute laser printer with 8-1/2" x 11" and 11" x 17"
paper trays.

B. Automatic Switch

C. Provide these printers at the CSS

PART 3 EXECUTION

3.01 INSTALLATION

A. Set up the workstations and printers as indicated on the drawings. Install all software and verify that the systems are fully operational. Ensure licensing is provided for all software.

B. No license, software component, key, etc., or any piece of information required to install, configure, operate, diagnose and maintain the system shall be withheld from the Owner.

C. Install electronic control system Operation and Maintenance Manuals, programming guides, network configuration tools, and control shop drawings, etc., on each OWS and CSS. Provide interface or shortcuts to guide user to the appropriate information.

D. Set up portable operator terminal and configure it as the remote workstation. Install all software and verify that the system is fully operational.

E. Install systems and materials in accordance with manufacturer's instructions. F.

Deliver hand-held devices to the Owner prior to specified training dates.

END OF SECTION 02 06 01

SECTION 02 07 01
FIELD EQUIPMENT PANELS

PART 1 GENERAL

1.01 SECTION INCLUDES:

A. Building Controller (BC)

B. Advance Application Specific Controller (AAC) C. Application Specific Controller (ASC)

1.02 DESCRIPTION OF WORK:

A. Furnish and install DDC Control units and/or Smart Devices required to support specified building automation system functions as outlined in Sections 23 09 00.

PART 2 PRODUCTS

2.01 STAND-ALONE FUNCTIONALITY

A. General: All products described herein shall comply to ANSI/EAI 709.1 “LonTalk” control protocol. No other equipment shall be considered.

B. These requirements clarify the requirement for stand-alone functionality relative to packaging

I/O devices with a controller.

C. Functional Boundary: Provide controllers so that all points associated with and common to one unit or other complete system/equipment shall reside within a single control unit. The boundaries of a standalone system shall be as dictated in the contract documents. Generally systems specified for the Application Category will dictate the boundary of the standalone control functionality. See related restrictions below. When referring to the controller as pertains to the standalone functionality, reference is specifically made to the processor. One processor shall execute all the related I/O control logic via one operating system that uses a common programming and configuration tool.

D. The following configurations are considered acceptable with reference to a controller’s standalone functionality:

1. Points packaged as integral to the controller such that the point configuration is listed as an essential piece of information for ordering the controller (having a unique ordering number).

2. I/O point expander boards, plugged directly into the main controller board to expand the point capacity of the controller.

E. The following configurations are considered unacceptable with reference to a controller’s standalone functionality:

1. Multiple controllers enclosed in the same control panel to accomplish the point requirement.

2.02 Building Controller (BC)

A. General Requirements:

1. Controllers shall implement the full ANSI/CEA 709.1 “LonTalk” protocol. Controllers must meet all of the requirements of this standard and must adhere to all of the protocol definition set forth by ANSI. All controllers shall be able to co-exist and interoperate on the LonWorks network without interfering or limiting other controller’s functionality. Controllers shall be able to be installed by any standard LonWorks Network Services (LNS) based network management tool.

2. The BC(s) shall provide fully distributed control independent of the operational status of the OWSs and CSS. All necessary calculations required to achieve control shall be executed within the BC independent of any other device. All control strategies performed by the BC(s) shall be both operator definable and modifiable through the Operator Interfaces.

3. BCs shall perform overall system coordination, accept control programs, perform automated HVAC functions, control peripheral devices and perform all necessary mathematical and logical functions. BCs shall share information with the entire network of BCs and AACs/ASCs for full global control. Each controller shall permit multi-user operation from multiple workstations and portable operator terminals connected either locally or over the Primary Controller LAN. Each unit shall have its own internal RAM, non-volatile memory, microprocessor, battery backup, regulated power supply, power conditioning equipment, ports for connection of operating interface devices, and control enclosure. BCs shall be programmable from an operator workstation, portable operators terminal, or hand held operating device. BC shall contain sufficient memory for all specified global control strategies, user defined reports and trending, communication programs, and central alarming.

4. BCs shall be connected to a controller network that qualifies as a Primary Controlling
LAN.

5. All BCs shall be protected from any memory loss due to a loss of power by one or a combination of the following:

   a. Volatile RAM shall have a battery backup using a lithium battery with a rated service life of fifty (50) hours, and a rated shelf life of at least five years. Self-diagnostic routine shall report an alarm for a low battery condition.

   b. EEPROM, EPROM, or NOVROM non-volatile memory

6. In addition BCs may provide intelligent, standalone control of HVAC functions. Each BC may be capable of standalone direct digital operation utilizing its own processor, non- volatile memory, input/output, wiring terminal strips, A/D converters, real-time clock/calendar and voltage transient and lightning protection devices. Refer to standalone functionality specified above.

7. The BC may provide for point mix flexibility and expandability. This requirement may be met via either a family of expander boards, modular input/output configuration, or a combination thereof. Refer to stand alone functionality specified above.

8. All BC point data, algorithms and application software shall be modifiable from the Operator Workstation.

9. Each BC shall execute application programs, calculations, and commands via a microprocessor resident in the BC. The database and all application programs for each BC shall be stored in non-volatile or battery backed volatile memory within the BC and will be able to upload/download to/from the OWS and/or CSS.

10. BC shall provide buffer for holding alarms, messages, trends etc.

11. Each BC shall include self-test diagnostics, which allow the BC to automatically alarm any malfunctions, or alarm conditions that exceed desired parameters as determined by programming input.

12. Each BC shall contain software to perform full DDC/PID control loops.

13. For systems requiring end-of-line resistors those resistors shall be located in the BC.

14. Input-Output Processing

a. Digital/Binary Outputs (DO/BO): Outputs shall be rated for a minimum 24 Vac or Vdc, 1 amp maximum current. Each shall be configurable as normally open or normally closed. Each output shall have an LED to indicate the operating mode of the output and a manual hand off or auto switch to allow for override. If these HOA switches are not provided on the main board they shall be provided via isolation relays within the control enclosure. Each DO shall be discrete outputs from the BC's board (multiplexing to a separate manufacturer's board is unacceptable). Provide suppression to limit transients to acceptable levels.

b. Analog Inputs (AI): AI shall be O-5 Vdc, 0-10 Vdc, 0-20 Vdc, and 0-20 mA. Provide signal conditioning, and zero and span calibration for each input. Each input shall be a discrete input to the BC's board (multiplexing to a separate manufacturers board is unacceptable unless specifically indicated otherwise). A/D converters shall have a minimum resolution of 12 bits.

c. Digital Inputs (DI): Digital Inputs may be used to monitor dry contact closures. Accept pulsed inputs of at least one per second. Source voltage for sensing shall be supplied by the BC and shall be isolated from the main board. Software multiplexing of an AI and resistors may only be done in non-critical applications and only with prior approval of GSA.

d. Universal Inputs (UI-AI or DI): To serve as either AI or DI as specified above.

e. Electronic Analog Outputs (AO): Voltage mode: 0-5 Vdc and 0-10 Vdc; Current mode: 4-20 mA. Provide zero and span calibration and circuit protection. Pulse Width Modulated (PWM) analog via a DO is acceptable only with Government approval (Generally these will not be allowed on loops with a short time constant such as discharge temperature loops, economizer loops, pressure control loops and the like. They are generally acceptable for

standard room temperature control loops.). Where these are allowed, transducer/actuator shall be programmable for normally open, normally closed, or hold last position and shall allow adjustable timing. Each DO shall be discrete outputs from the BC's board (multiplexing to a separate manufacturers board is unacceptable). D/A converters shall have a minimum resolution of 10 bits.

f. Pulsed Inputs: Capable of counting up to 8 pulses per second with buffer to accumulate pulse count. Pulses shall be counted at all times.

15. A communication port for operator interface through a terminal shall be provided in each BC. It shall be possible to perform all program and database back-up, system monitoring, control functions, and BC diagnostics through this port. Standalone BC panels shall allow temporary use of portable devices without interrupting the normal operation of permanently connected modems, printers, or workstations.

16. All analog output points shall have a selectable failure setpoint. The BC shall be capable of maintaining this failure setpoint in the event of a system malfunction, which causes loss of BC control, or loss of output signal, as long as power is available at the BC. The failure setpoint shall be selectable on a per point basis.

17. Slope intercepts and gain adjustments shall be available on a per-point basis.

18. BC Power Loss:

a. Upon a loss of power to any BC, the other units on the primary controlling network shall not in any way be affected.

b. Upon a loss of power to any BC, the battery backup shall ensure that the energy management control software, the Direct Digital Control software, the database parameters, and all other programs and data stored in the RAM are retained for a minimum of fifty (50) hours. An alarm diagnostic message shall indicate that the BC is under battery power.

c. Upon restoration of power within the specified battery backup period, the BC shall resume full operation without operator intervention. The BC shall automatically reset its clock such that proper operation of any time dependent function is possible without manual reset of the clock. All monitored functions shall be updated.

d. Should the duration of a loss of power exceed the specified battery back-up period or BC panel memory be lost for any reason, the panel shall automatically report the condition (upon resumption of power) and be capable of receiving a download via the network, and connected computer. In addition, the Government shall be able to upload the most current versions of all energy management control programs, Direct Digital Control programs, database parameters, and all other data and programs in the memory of each BC to the operator workstation via the local area network, or via the telephone line dial-up modem where applicable, or to the laptop PC via the local RS-

232C port.

19. BC Failure:

    a. Building Controller LAN Data Transmission Failure: BC shall continue to operate in stand-alone mode. BC shall store loss of communication alarm along with the time of the event. All control functions shall continue with the global values
    programmable to either last value or a specified value. Peer BCs shall recognize the loss, report alarm and reconfigure the LAN.

    b. BC Hardware Failure: BC shall cease operation and terminate communication with other devices. All outputs shall go to their specified fail position.

20. Each BC shall be equipped with firmware resident self-diagnostics for sensors and be capable of assessing an open or shorted sensor circuit and taking an appropriate control action (close valve, damper, etc.).

21. A minimum of four levels of password protection shall be provided at each BC.

22. BCs shall be mounted on equipment, in packaged equipment enclosures, or locking wall mounted in a NEMA 1 enclosure, as specified elsewhere.

2.03 LONWORKS® APPLICATION SPECIFIC NODES (LASN)

A. General characteristics of LASN

1. The processor shall be a 3120, 3150, or 5000 Neuron.

2. LonMark certified and must comply with the following LONMARK® interoperability profile guidelines:

    a. Variable Air Volume (VAV) boxes - Profile 8502 b. Fan Coil Units - Profile 8501 c. Unit Ventilators - Profile 8505 d. Heat Pumps - Profile 8503

3. Non-programmable, configurable application.

4. Shall provide software configuration tool, as specified under system software.

5. Data broadcasting to the network or data polling shall be controlled by the application to preclude data storms on the network.

6. Controllers shall include all inputs and outputs necessary to perform the specified control sequences. Analog and digital outputs shall be industry standard signals such as 0-10Vdc and floating point control allowing for interface to industry standard field devices.

7. After a power failure the LASN must run the control application using the current setpoints and configuration. Reverting to default or factory setpoints is not acceptable.

B. Variable Frequency Drive (VFD) Node – See Specification 23 09 36.

C. Intelligent LonMark Room Sensors

1. Room temperature sensors are to be provided with a cover to prevent accidental damage.

2. Terminal unit temperature sensors shall all be of the thermistor (NTC) type with a minimum of 100 ohm/ degrees F resistance change versus temperature change within a range of 60 to 90F to ensure good resolution and accuracy. Thermistor shall produce

2.04 VARIABLE AIR VOLUME (VAV) AIR DISTRIBUTION TERMINAL CONTROL UNIT (TCU) NODE

A. Control of VAV air distribution terminal units shall be accomplished by an individual TCU node with network interface to the DDC system. The TCU shall be equipped with a 3120, 3150 Neuron®, or Neuron 5000® microprocessor controller, programmable non- volatile (Flash or EEPROM) memory, power supply, I/O, terminal blocks, and network transceivers.

B. The TCUs shall be LASN.

C. Air distribution terminal unit TCUs shall be provided with transformers as necessary for 120Vac operations.

D. Each air distribution terminal unit TCU shall contain resident programs that are field configurable for a specific application. Resident programs shall be contained in nonvolatile memory using EEPROM and Flash RAM.

E. The TCU shall support the following functions:

1. Both pressure independent and pressure dependent control strategies. For pressure independent control, the damper control algorithm shall be based on fuzzy logic.
2. Multiple heating and cooling set points (occupied, standby and unoccupied).
3. Timed occupancy override with a configurable time period.
4. Support for occupied, standby, unoccupied, shutdown and purge modes.
5. Minimum airflow settings for heating and cooling in both the occupied and unoccupied modes. In the occupied mode these settings shall be dynamically reset as a function of a CO_2 value sent to the controller over the network or locally measured.

F. The TCU shall support the following interfaces:

1. Damper only VAV terminals.
2. Series fan powered VAV terminals.
3. Parallel fan powered VAV terminals.
4. Hydronic reheat coils with tri-state actuators.
5. Up to 3 stages of electric reheat (two position control).
6. Local occupancy sensor-PIR.
7. Local CO_2 sensor.
8. Room Temperature Sensor with local display, occupancy override, and set point adjustment.
9. Connection to the TCU through the room sensor for air balance configuration.

G. TCU Configuration and commissioning – provide TCU configuration and commissioning via POT connected to the network, or service device connected to the TCU through the zone sensor.

H. The TCU shall be LonMark™-certified for functional profile of a VAV controller. I. LONWORKS® Network interface, the TCU, shall use a Type 1 transceiver.

PART 3 EXECUTION

3.01 INSPECTION:

A. Examine areas and conditions under which control systems are to be installed. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.

3.02 INSTALLATION OF CONTROL SYSTEMS:

A. General: Install systems and materials in accordance with manufacturer's instructions, specifications roughing-in drawings and details shown on drawings. Contractor shall install all controllers in accordance with manufacturer's installation procedures and practices.

3.03 HARDWARE APPLICATION REQUIREMENTS:

A. General: The functional intent of this specification is to allow cost effective application of manufacturers standard products while maintain the integrity and reliability of the control functions. A Building Controller as specified above is generally fully featured and customizable whereas the AAC/ASC refers to a more cost-effective unit designed for lower- end applications. Specific requirements indicated below are required for the respective application. Manufacturer may apply the most cost-effective unit that meets the requirement of that application.

B. Standalone Capability: Each Control Unit shall be capable of performing the required sequence of operation for the associated equipment. All physical point data and calculated values required to accomplish the sequence of operation shall originate within the associated CU with only the exceptions enumerated below. Refer to Item 2.01 above for physical limitations of standalone functionality. Listed below are functional point data and calculated values that shall be allowed to be obtained from or stored by other CUs or SDs via LAN.

C. Where associated control functions involve functions from different categories identified below, the requirements for the most restrictive category shall be met.

D. Application Category 0 (Distributed monitoring)

1. Applications in this category include the following:

   a. Monitoring of variables that are not used in a control loop, sequence logic, or safety.

2. Points on BCs, AACs, and ASCs may be used in these applications as well as SDs and/or general-purpose I/O modules.

3. Where these points are trended, contractor shall verify and document that the network bandwidth is acceptable for such trends and is still capable of acceptable and timely control function.

E. Application Category 1 (Application Specific Controller):

1. Applications in this category include the following:

   a. Fan Coil Units

b. Airflow Control Boxes (VAV and Constant Volume Terminal Units)

c. Misc. Heaters

d. Unitary equipment <15 tons (Package Terminal AC Units, Package Terminal Heat Pumps, Split-System AC Units, Split-System Heat Pumps, Water-Source Heat Pumps)

e. Induction Units

f. Variable Speed Drive (VSD) controllers not requiring safety shutdowns of the controlled device.

2. ASCs may be used in these applications.

3. Standalone Capability: Provide capability to execute control functions for the application for a given set point or mode, which shall generally be occupied mode control. Only the following data (as applicable) may be acquired from other controllers via LANs. In the event of a loss of communications with any other controller, or any fault in any system hardware that interrupts the acquisition of any of these values, the ASC shall use the last value obtained before the fault occurred. If such fault has not been corrected after the specified default delay time, specified default value(s) shall then be substituted until such fault has been corrected.

4.

Physical/Virtual Point	Default Value
Scheduling Period	Normal
Morning Warm-Up	Off (cold discharge air)
Load Shed	Off (no shedding)
Summer/Winter	Winter
Outdoor Air Temp	Last read state
Smoke Control	Normal Mode

5. Mounting:

a. ASCs that control equipment located above accessible ceilings shall be mounted on the equipment in an accessible enclosure and shall be rated for plenum use.

b. ASCs that control equipment mounted in a mechanical room may either be mounted in, on the equipment, or on the wall of the mechanical room at an adjacent, accessible location.

c. ASCs that control equipment mounted outside or in occupied spaces shall either be located in the unit or in a proximate mechanical/utility space.

6. Programmability: Operator shall be able to modify all set points (temperature and airflow), scheduling parameters associated with the unit, tuning and set up parameters, inter-stage timing parameters, and mode settings. Application-specific block control algorithms may be used to meet the sequence of operations.

F. Application Category 2

1. Applications in this category include the following:

   a. Unitary Equipment >= 10 tons (Air Conditioners, Heat Pumps, Packaged Heating/Cooling Units, and the like)

   b. Small, Constant Volume Single Zone Air Handling Units c. Constant Volume Pump Start/Stop

   d. Misc. Equipment (Exhaust Fan) Start/Stop

   e. Misc. Monitoring (not directly associated with a control sequence and where trending is not critical)

   f. Steam Converter Control

   g. Large Constant Volume Air Handlers h. Small VAV Air Handlers

   i. Self-Contained VAV Units

   j. Sequenced or Variable Speed Pump Control k. Local Chiller Control (unit specific)

   l. Local Free Cooling Heat Exchanger Control m. Air Handlers serving critical areas

2. AAC/ASCs may be used in these applications.

3. Standalone Capability: Provide capability to execute control functions for the application for a given set point or mode, which shall generally be occupied mode control. Only the following data (as applicable) may be acquired from other controllers via LANs. In the event of a loss of communications with any other controller, or any fault in any system hardware that interrupts the acquisition of any of these values, the ASC shall use the last value obtained before the fault occurred. If such fault has not been corrected after the specified default delay time, specified default value(s) shall then be substituted until such fault has been corrected.

Physical/Virtual Point	Default Value
Scheduling Period	Normal
Morning Warm-Up	off (cold discharge air)
Load Shed	Off (no shedding)

Summer/Winter	Winter
Outdoor Air Temp	Last read state
Smoke Control	Normal Mode

4. Mounting:
   a. ASCs that control equipment located above accessible ceilings shall be mounted on the equipment in an accessible enclosure and shall be rated for plenum use.
   b. ASCs that control equipment mounted in a mechanical room may either be mounted in, on the equipment, or on the wall of the mechanical room at an adjacent, accessible location.
   c. ASCs that control equipment mounted outside or in occupied spaces shall either be located in the unit or in a proximate mechanical/utility space.
5. Programmability: Operator shall be able to modify all set points (temperature and airflow), scheduling parameters associated with the unit, tuning and set up parameters, inter-stage timing parameters, and mode settings. Application-specific block control algorithms may be used to meet the sequence of operations.
6. Applications in this category include the following:
   a. Large Built Up VAV Air Handlers b. Central Cooling Plant
   c. Central Heating Plant d. Cooling Towers

G. Application Category 3
1. Applications in this category include the following:
   a. Large Built Up VAV Air Handlers b. Central Cooling Plant
   c. Central Heating Plant d. Cooling Towers
2. BCCs may be used in these applications.
3. Standalone Capability: Provide capability to execute control functions for the application for a given set point or mode, which shall generally be occupied mode control. Only the following data (as applicable) may be acquired from other controllers via LANs. In the event of a loss of communications with any other controller, or any fault in any system hardware that interrupts the acquisition of any of these values, the BC shall use the last value obtained before the fault occurred. If such fault has not been corrected after the specified default delay time, specified default value(s) shall then be substituted until such fault has been corrected.

Physical/Virtual Point	Default Value
Scheduling Period	Normal

Morning Warm-Up	Off (cold discharge air)
Load Shed	Off (no shedding)
Summer/Winter	Winter
Outdoor Air Temp	Last read state
Smoke Control	Normal Mode

4. Mounting:

   a. BCs that control equipment mounted in a mechanical room may either be mounted in, on the equipment, or on the wall of the mechanical room at an adjacent, accessible location.

   b. BCs that control equipment mounted outside or in occupied spaces shall either be located in the unit or in a proximate mechanical/utility space.

5. Programmability: Operator shall be able to modify all set points (temperature and airflow), scheduling parameters associated with the unit, tuning and set up parameters, inter-stage timing parameters, and mode settings.

END OF SECTION 02 07 01

SECTION 02 08 01
SEQUENCE OF OPERATIONS

PART 1 GENERAL

1.01 EXISTING CONDITIONS

A. Contractor Responsibilities

1. Contractor shall verify the sequence of operations and modify as required to provide a fully operational system that meets the buildings requirements and complies with applicable codes.

1.02 REFERENCES

A. Reference Specification Section 23 09 83 Smoke Control

1.03 SUBMITTALS

A. Design Phase

1. Contractor shall include control sequences of operations in the control drawings for the applicable systems for each page.

2. Contractor shall submit the same sequence of operations in a separate written format to be used later in the Building Operations Plan.

B. Construction Phase

1. If applicable, a revised sequence of operations shall be submitted prior to commissioning the systems during the Functional Performance Testing so that the test forms can be modified to fit existing conditions.

C. Final Documentation

1. As-built drawings shall reflect the actual sequence of operations finalized in the Functional Performance Testing phase.

2. The final written format sequence of operations shall be incorporated into the Building Operations Plan and final documentation.

END OF SECTION 02 08 01

TIMELINE

The following estimated timeline is provided for proposer's general information. None of the dates are binding upon the Court:

EVENT	DATE
RFP Issued	*May 31, 2013*
RFP Conference	*See www.BidSync.com for exact date(s)*
Deadline for Submission of Questions	*See www.BidSync.com for exact date(s)*
Deadline for Submission of Proposal (Late proposals cannot be accepted)	*See www.BidSync.com for exact date(s)*
Proposal Evaluation, Oral Interviews and/or Proposer Demonstrations (Optional, at the Court's discretion)	*June, 2013*
Notice of Intent to Award	*June, 2013*
Contract Execution	*June, 2013*
START DATE OF SERVICES	*June, 2013*

INSURANCE REQUIREMENTS

Contractor must procure and maintain the insurance coverages as marked below.

The Model Contract document on www.BidSync.com describes the Court's specific insurance requirements.

☒ **Model Contract, Exhibit C, Section 19.2 Insurance Requirements – Specific Coverages**

☒ Workers Compensation/Employer's Liability

☒ Comprehensive General Liability

☒ Business Automobile Liability

ADDITIONAL PROVISIONS

CONTENT OF PROPOSAL

Description of proposed techniques, approaches, and methods to be used in performing the services, including a listing of all specifications contained in the RFP's Statement of Work for which Proposer shall supply to the Court under any contract awarded under this RFP (e.g., model numbers, warranty information).

EVALUATION OF PROPOSALS

The Court will evaluate the proposals using the criteria set forth in the table below. An award, if any, may be made to the Highest Scoring Proposer.

CRITERION	PERCENT WEIGHTED
Quality of work plan submitted; Ability to provide high quality services on a timely basis	*25%*
Experience on similar assignments	*25%*
Cost	*50%*

DISABLED VETERAN BUSINESS ENTERPRISE PREFERENCE

The Court has waived the inclusion of DVBE participation in this solicitation. As such, DVBE incentives will not be awarded or considered in this solicitation.

MULTIPLE AWARDS

The Court reserves the right, but is under no obligation, to award multiple contracts to more than one vendor under this RFP. If multiple awards are made, the Court will not be obligated to procure any minimum amount of Work under any such contracts executed under this RFP.

COOPERATIVE AGREEMENT ("PIGGYBACKING"):

Following discussion, consideration, and requiring the mutual agreement of Court and the eventual, successful bidder/proposer, the following (or similar) "piggybacking clause" may be included in the final form of the Agreement if mutually desired:

> "The Court conducted a competitive procurement process in compliance with the California Judicial Branch Contract Law and Manual and which resulted in the execution of this Agreement. The provisions and pricing of this Agreement may be extended to other California government agencies. A government agency wishing to utilize the provisions and pricing of this Agreement will be responsible for issuing its own purchase documents and making any and all payments relative to its agreement. Any participating government agency is responsible for obtaining its own certificates of insurance and any required performance bonds. The Court makes no guarantee to other government agencies that may utilize the provisions or pricing of this

Agreement. By utilizing the provisions or pricing of this Agreement, the participating government agency agrees to hold the Court harmless from all claims, demands, or actions of every kind resulting directly or indirectly, arising out of, or in any way connected with the utilization of the provisions or pricing of this Agreement. The Court makes no guarantee to Contractor that any other government agency will make use of the provisions or pricing of this Agreement."

EXHIBIT A
AOC OCCM GRAPHICS STANDARDS

Released in 2010. The following are the Graphic Standards and requirements of the Administrative Office of the Courts for all new Building Management System projects both new building and retrofits.

CONTINUED

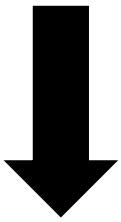


EXHIBIT A

Minimum Graphics Design for the AOC

Building **A**utomation **S**ystem

All graphics will be created and animated to represent the following examples enclosed. This document is a minimum requirement for all systems in any project, which will be displayed graphically and presented to
the owner for their review and approval.

All physical equipment will be represented on or in a graphic.

EXHIBIT A

Table of Contents

Minimal Graphic Engine Requirements

The graphics editor will be able to offer functions for flexible data conversion, animation, dynamics and interactivity. A JavaScript editor is available in the graphics editor, which enables programmers to develop custom data conversion routines and custom interactivity behaviors in TGML graphics.

The graphics editor contains functions for basic drawing of graphics and uses common graphics editing functions similar to many market leading tools or editors. Ready-made components for common graphics functions are available in component libraries. Easy-to-use simple tools for drawing shapes such as lines, rectangles and circles are available, as well as more advanced shapes and graphical effects tools.

The graphics editor will enable it users to create and edit reusable graphics parts called Components and
Snippets.

Engineering requirements

- Components and Symbols – Ready-made objects are available in the Components and Snippets panes.
  - Basic Controls
  - DIN Symbols (EN)
  - ISO Symbols
  - Basic Functions Snippets
- Drag'n drop – Drag'n drop of components to the drawing surface. Components can also be dropped on e- mail message, MSN Messenger or Windows Explorer windows for easy distribution.
- Bindings – Connections to control system data are done through bindings. A Bindings window is available in the editor for convenience for users to create connections. Connections to bindings are primarily performed within the target system.
- Links – A Links window enables users to link graphics objects to other objects such as other graphics, trend charts or reports.
- Properties – A property grid enables easy editing of single or multiple selected graphics objects.
- Objects – The Objects window presents the objects of a TGML document in a hierarchical form and allows users to re-arrange, move, duplicate and edit objects.
- Printing – The editor provides functions for printing and print preview.
- Help – Extensive online help available.

Basic Drawing

- Shapes – A number of basic drawing tools are available within the graphics editor that allow users to create graphics such as flow diagrams, floor plans, maps, navigational maps or any type of presentation of dynamic data.
  - Line

– Poly line
– Curve
– Polygon
– Rectangle
– Ellipse

– Arc
– Pie
– Text
– Textbox
– Picture

• Options – A multitude of drawing options are available to enable users to create good looking and intuitive graphics.

– Fill
– Stroke
– Style
– Width
– Corner
– Font
– Font size
– Font style
– Justification

• Effects – The graphics effects capabilities are improved and the graphics editor contains functions for editing effects such as gradients and semi-transparent colors.

• Editing – Many functions are available in the editor for common editing tasks such as moving, resizing, aligning, rotating, changing drawing order, copying and pasting.

Other Formats

• Image embedding – Images such as photos or illustrations can be embedded into TGML graphics. Most common formats are supported.

• Import – The system has the capability to convert other drawing formats to TGML. After conversion, the imported drawings can be edited and managed as any TGML graphical object.

Advanced Functions

• Animations – A built-in advanced animation engine allows users to animate most attributes of objects used in a TGML document. Animations can be used to improve operators' user experience.

• Dynamics – Any TGML object's attribute can be configured to be controlled by data from the control system.

• Conversions – Powerful ready-made functions are available to convert data from the control system format to what is required for the TGML graphics. For instance, analog values can be converted to colors, binary values can control animations, values can be scaled etc.

• Custom conversions – Going beyond the ready conversion functions is not a problem with the script based custom conversion functionality.

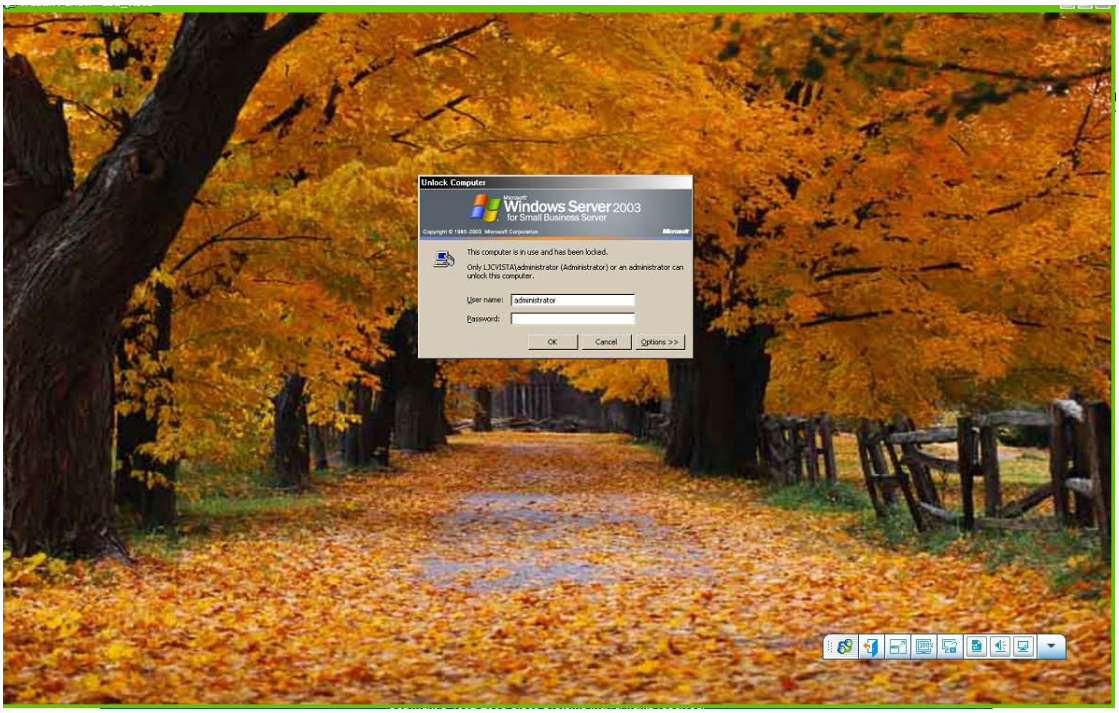
• Interactivity – It is easy to create re-usable components that use the default Workstation or web behavior when users click on the object. For even richer and more tailored user experience, the default behaviors can be overridden using scripts.

• Error indication – TGML graphics uses the default error indication methods for the target system platform. Custom error indication can be developed using scripts.

• Scripting – The scripting language for custom conversions, custom animations, custom interactions and for custom error indications is JavaScript, the same scripting language that is used in most web browsers and in many other off-the-shelf software systems.

• Document information – A TGML graphic contains data fields that can be used for specifying information about the document. The graphics editor provides the function for editing that data.

Logging Into the System

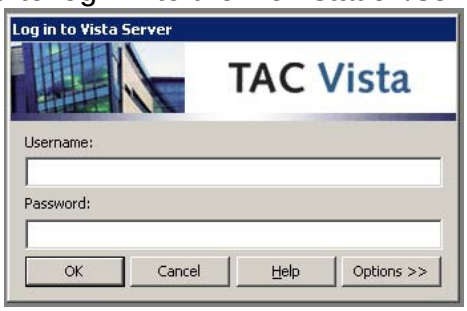


The COURT will supply you with the final configuration on how to set the domain, IP addresses and mail server to set-up the computer for your Enterprise Vista software.

User Name-By COURT Password-By COURT

The Server will be set-up as a self-loading service

Login in will be set-up as Windows domain login and the list of operators will be issued by the COURT with user name and access permissions. This is the same account used to login into the workstation/server.



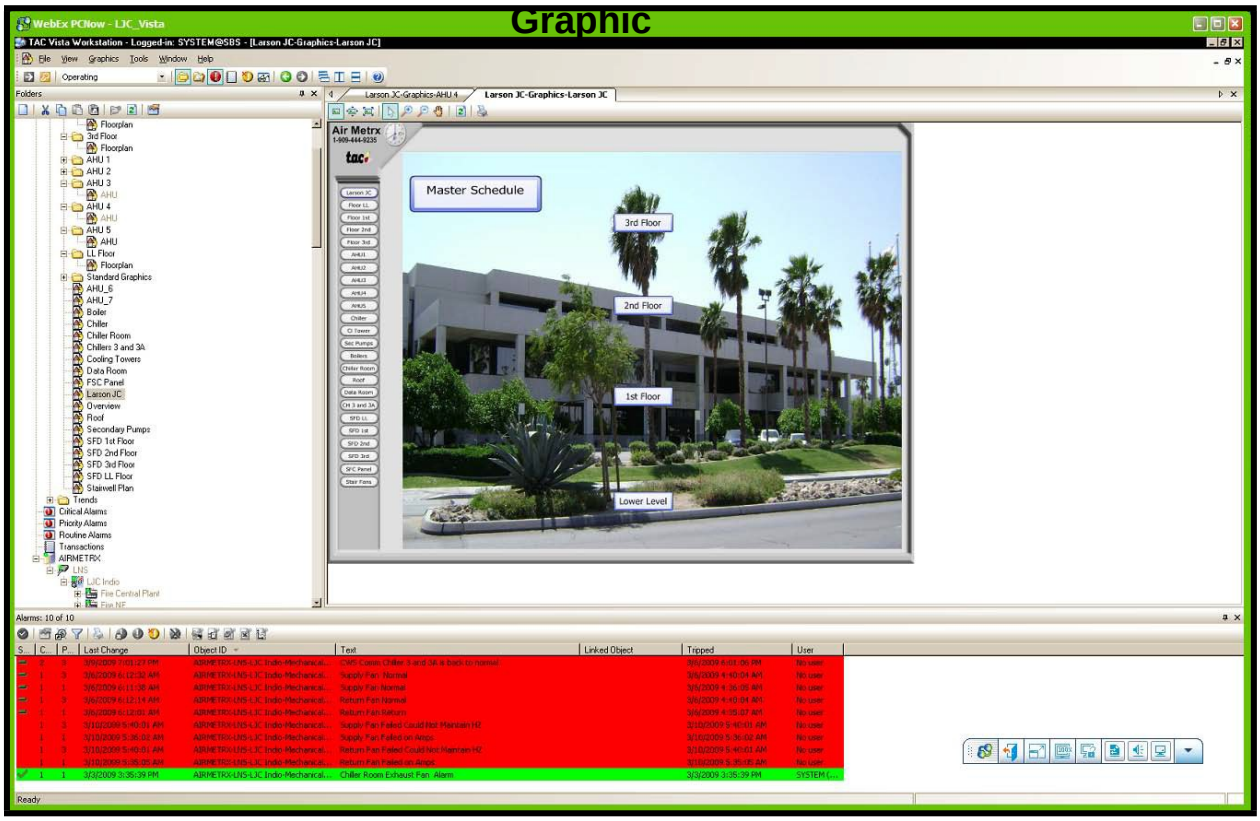
BAS Graphic Design

Home Page Screen Overview

Home Screen Links will have the ability to access all other main graphics. Note: the VAV's will be accessed through the thermal graphics page.

1. Master Schedule
2. The master schedule will control all start / stop functions on a global level
3. Review of Screen Links (left hand column of links on graphic)
4. The background graphic for the home page, will be a picture of the building. This will be submitted and approved by the COURT or it representatives.

Home Page Graphic

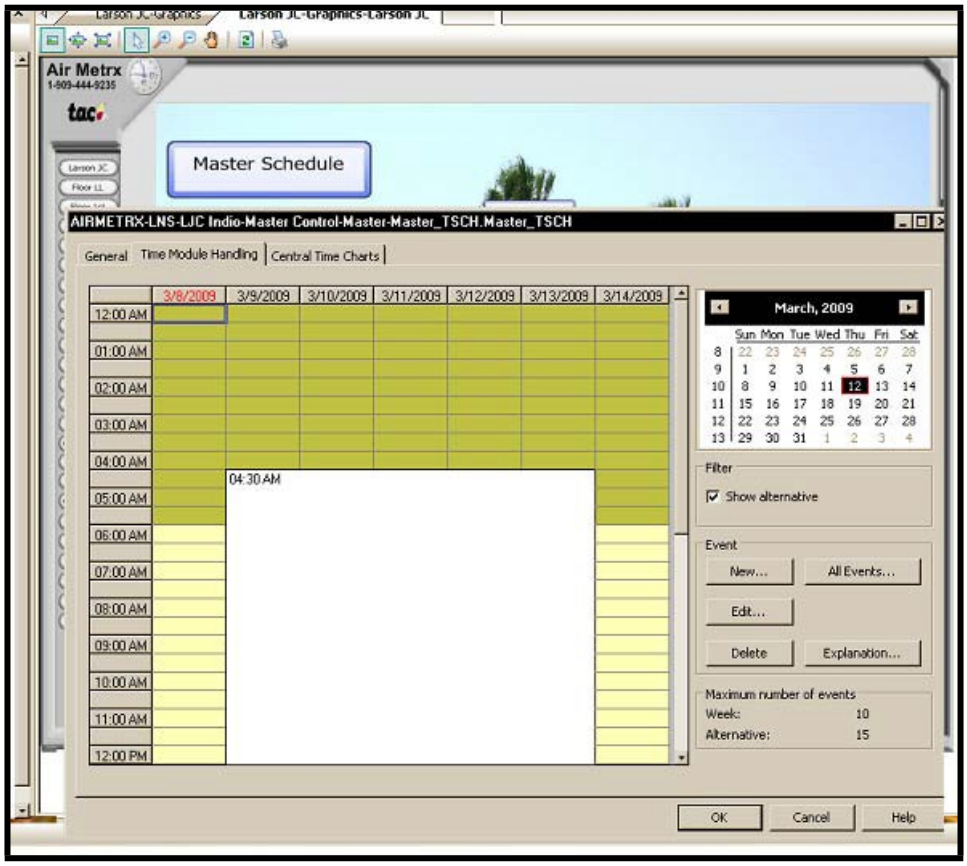


BAS Graphic Design

Master Schedule

1. Master Schedule Graphic
2. The Master Schedule will be set-up with the occupied schedule for the facility.
3. All other events will be set-up for the first two years for the facility, i.e.: holiday and special events to be supplied by the COURT.

Master Schedule Graphic



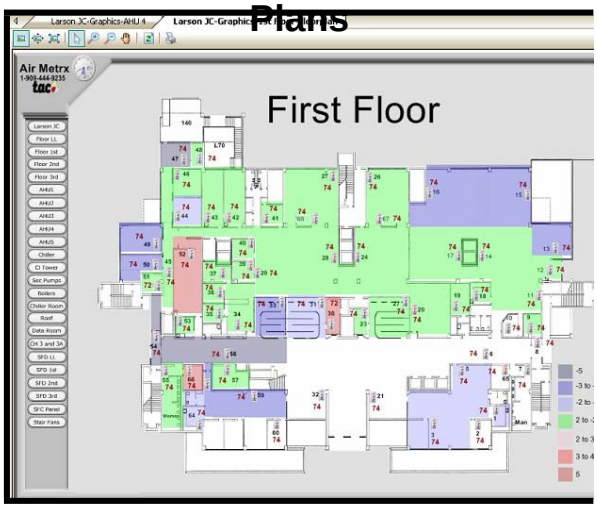
BAS Graphic Design

Thermal Graphic Floor Plans

The floor plan will be represented in a graphic form which will be displayed with the minimum layers as described below.

1. The master set point for each VAV box, which will be a forcible set point. (See Figure 3)
2. A thermostat that displays the space temperature that will magnify when the curser goes over it. (See Figure 2) and (See Figure 3), for layer.
3. Hyper Link to each VAV box. (See Figure 3)
4. An (f) next to the space temperature will display the zone has been forced. (See Figure 3)
5. Zone # per engineering plan. (See Figure 3)
6. A color changing layer that represents the shape of the zone being supplied by the zone. It will change color based on deviation in space temperature. Note: If the space temperature is overridden or modified, the layer will track the change. (See Figure 1) Graphic Temperature Colors in figure 1. All scaling and color will be matched unless authorized by the COURT. (See Figure 3)
7. Hyper link to all VAV's and all other major parts of the system on this page.

Thermal Graphic Floor Plans



BAS Graphic Design

Graphic Temperature Colors

Figure 1

Reading Area Temperatures on the Floor Graphics

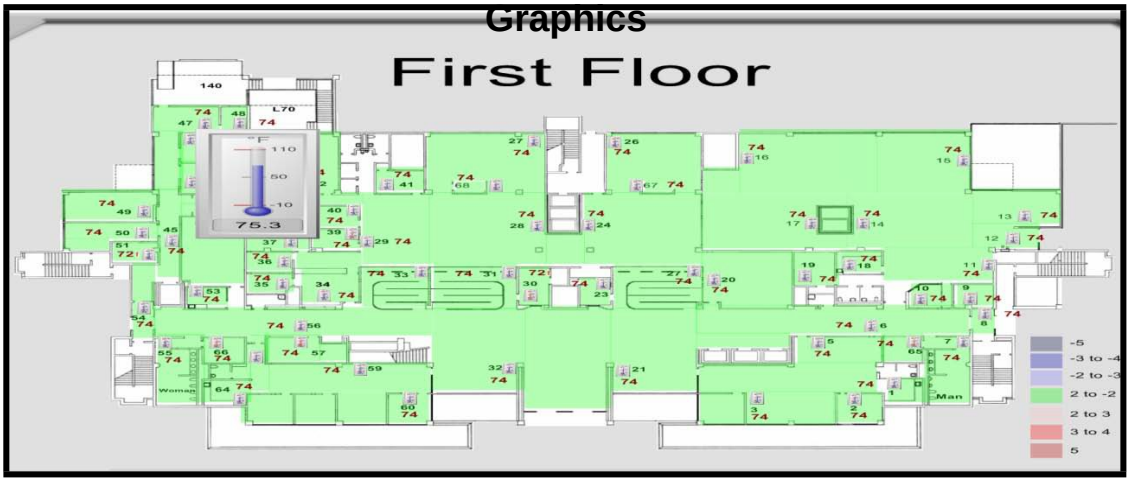


Figure 2

Layer Properties

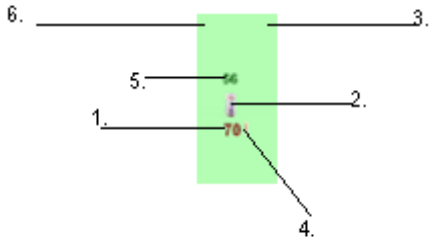


Figure 3

Variable Air Volume Box Review

Each type of VAV box will have its own graphical representation. (One graphic for each zone) The minimum graphical representation as seen in figures 4-6 below.

1. The damper and heating coil will be dynamic. The damper will open and close based on damper position and the hot water coil will go from blue to red using 6 distinct colors based on valve position.
2. Damper position display will magnify when the curser goes over it. (See Figure 6)
3. The following will be global set points to each VAV controller from the master controller. Application Mode (HVAC_Cool when heating is not available and auto all other times). Occupancy Zone space temperature set point and emergency command unless otherwise called out by the COURT or its representatives.
4. The VAV DAT will be tied into the OAT and have no effect on the control of the zone.
5. If a CO2 sensor is present the zone will reset based on CO2 level, 650 ppm and below normal operations. From 650 to 750 the box will open to 100% if damper position unless otherwise called out by the COURT or it representatives.
6. The links are as follows: home screen, floor plan, associated rooftop packaged unit, if applies.
7. All zones for afterhours override will bring on the associated rooftop packaged unit if needed. The zone will be set-up for two hours intervals.

BAS Graphic Design

Variable Air Volume Box Graphics

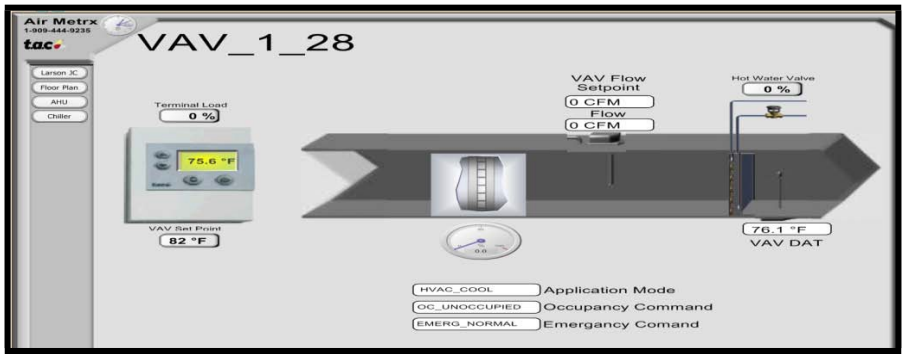


Figure 4

VAV Box with Re-Heat Coil

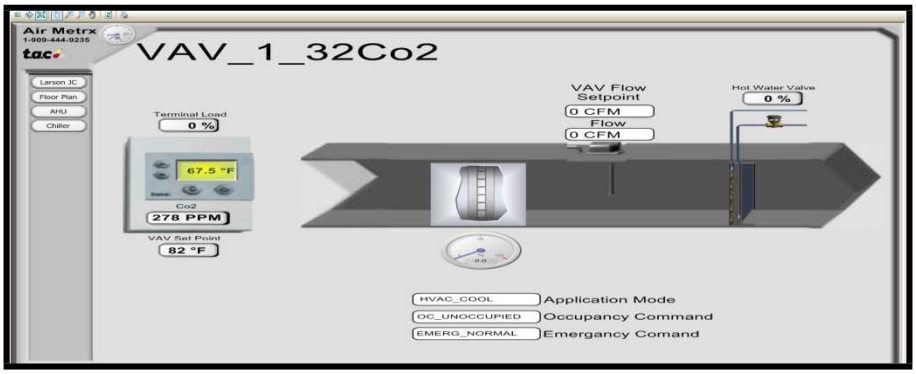


Figure 5

VAV Box with CO_2 Monitor

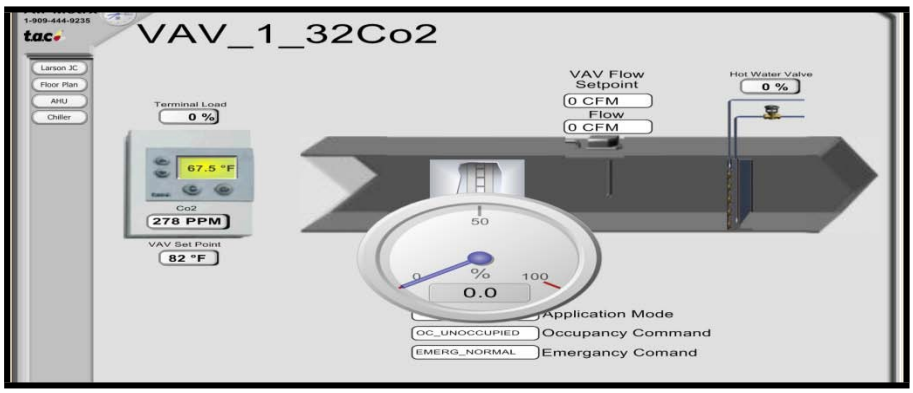


Figure 6

BAS Graphic Design

Rooftop Packaged Unit Graphics

The Rooftop Packaged Unit's graphics will represent the actual layout of the unit it is controlling. The look and feel will be matched based on figure 7-10.

1. All dampers, fans, filters, cooling coils, reset buttons, alarming, forced by operator and heating coils will be dynamic.
    - The damper and indicator will open and close based on damper position.
    - The hot water coil will go from gray to red for hot water using 6 distinct colors based on valve position.
    - The chilled water coil will go from gray to blue for chilled water using 6 distinct colors based on valve position.
    - The filter will flash when it is dirty.
    - All equipment in alarm will flash (alarm) with a white background over the piece of equipment in alarm.
    - An (f) next to the device and will display that the device has been forced.
    - The reset button will go from red to green when pressed and back to red after reset is released.(Auto)
2. All process variables will be displayed with the set points.
3. Emergency shutdown will be on each page for the unit represented.
4. A time schedule for that unit that will operate the AHU, the associated zones and the central plant.
5. Average thermal load will be displayed form the zone and will reset the discharge temperature based on load.

BAS Graphic Design

Rooftop Packaged Unit's Graphics

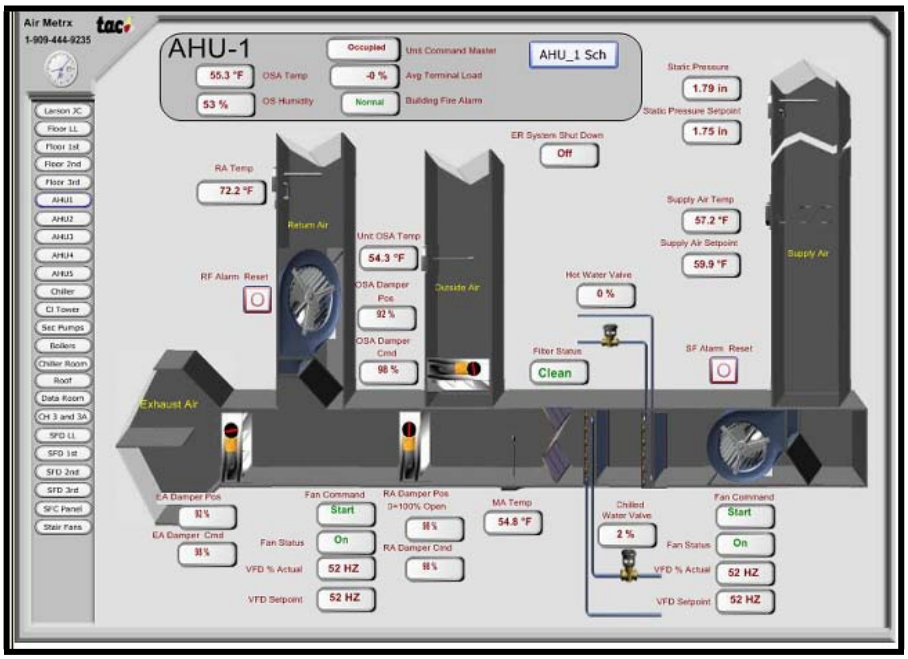


Figure 7

BAS Graphic Design

Roof Exhaust Fan Graphics

The exhaust fans graphics will represent the actual layout of the central plant as it is controlling. The look and feel will be matched based on figure 15.

1. All exhaust fans, reset buttons, alarming and forced by operator will be dynamic.

    - The exhaust fans will display the color red for stop and green for run.
    - All equipment in alarm will flash (alarm) with a white background over the piece of equipment in alarm.
    - An (f) next to the device and will display that the device has been forced.
    - The reset button will go from red to green when pressed and back to red after reset is released. (Auto)

Roof Exhaust Fan Graphics

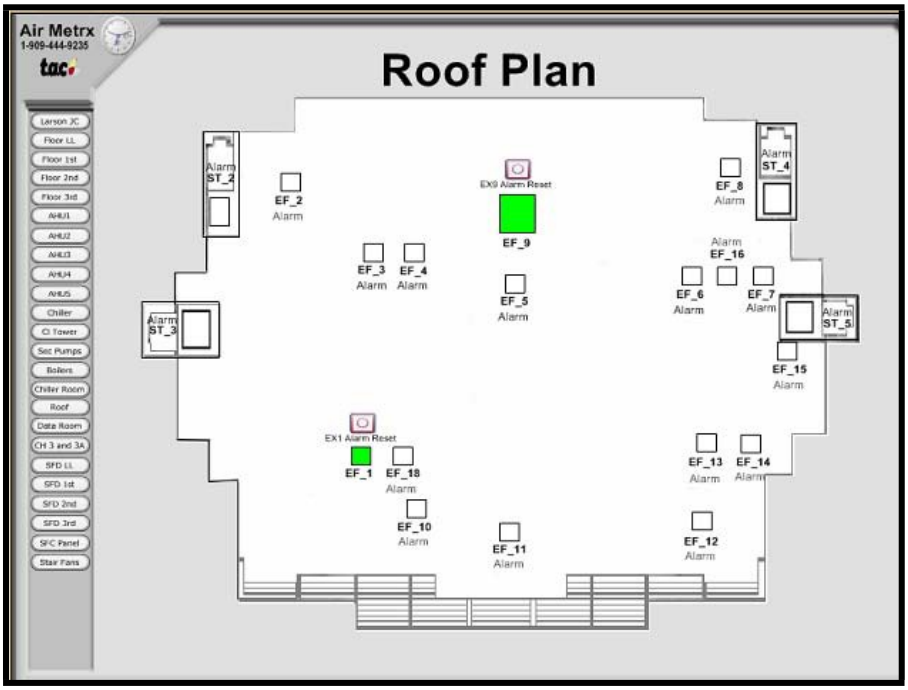


Figure 15

The graphics listed above are a general guideline and are the minimum design standards. All graphics need to be submitted and approved by the COURT before installing on the host as a final product.

CONTRACTOR INFORMATION QUESTIONNAIRE

CONTRACTOR - NAME, ADDRESS, PHONE AND E-MAIL ADDRESS:

2. **CONTACT PERSON FOR THIS BID/RFP - NAME, ADDRESS, PHONE, AND E-MAIL ADDRESS:**

3. **PRINCIPAL TYPE OF BUSINESS:**

4. **NUMBER OF YEARS IN BUSINESS:**

4A. NUMBER OF YEARS PROVIDING PRODUCTS/SERVICES SIMILAR TO SIZE AND SCOPE AS THOSE IN THIS SOLICITATION:

4B. NUMBER OF YEARS PROVIDING PRODUCTS/SERVICES SIMILAR TO SIZE AND SCOPE AS THOSE IN THIS SOLICITATION TO GOVERNMENT AGENCY CLIENTS:

5. **PREVIOUS BUSINESS NAMES, PREVIOUS LOCATIONS, AND LENGTH OF TIME AT EACH LOCATION:**

6. **DESCRIPTION OF CONTRACTOR'S BUSINESS ORGANIZATION, INCLUDING COMPANY OFFICERS, PARTNERS, PRINCIPALS, ETC., AS APPLICABLE:**

7. **DESCRIPTION OF CONTRACTOR'S PRIMARY PRODUCTS/SERVICES:**

8. **DESCRIPTION OF CONTRACTOR'S TYPICAL CLIENTS:**

9. **REFERENCES - LIST THE NAME, ADDRESS, PHONE AND E-MAIL ADDRESS OF THREE (3) BUSINESS REFERENCES FOR WHOM YOU HAVE PROVIDED SIMILAR SERVICES AS THOSE IN THIS BID/RFP WITHIN THE PAST THREE (3) YEARS.**
   (Please notify these References that you have provided them to the Court as References):

10. **LIST CONTRACTOR'S GROSS INCOME/RECEIPTS FOR THE PRIOR THREE (3) YEARS.**
    (COURT RESERVES THE RIGHT TO REQUEST ADDITIONAL FINANCIAL INFORMATION, RECORDS, PROFIT AND LOSS STATEMENTS, ETC.):

11. **LIST AND DESCRIBE SIGNIFICANT TRANSACTIONAL EVENTS IN THE PAST FIVE (5) YEARS SUCH AS: BANKRUPTCIES, MERGERS, ACQUISITIONS, INITIAL PUBLIC OFFERINGS (IPO'S).**

12. **LIST THE ANNUAL CONTRACT VALUE OF THE CONTRACTOR'S THREE (3) LARGEST CONTRACTS FOR SIMILAR PRODUCTS AND SERVICES IN THE PAST THREE (3) YEARS.**

13. **PERCENT OF TURNOVER IN THE CONTRACTOR'S ORGANIZATION FOR EACH OF THE LAST THREE (3) YEARS OF SERVICE STAFF WHO WILL BE RESPONSIBLE FOR PROVIDING PRODUCTS AND SERVICES DESCRIBED IN THIS RFP (E.G., ACCOUNT MANAGER, CUSTOMER SERVICE PERSONNEL, ETC.).**

14. **LIST AND DESCRIBE ANY CURRENT OR PENDING BUSINESS DISPUTES OR LITIGATION OF ANY TYPE, i.e. LAWSUITS, BANKRUPTCY PROCEEDINGS, ARBITRATIONS, MEDIATIONS, OTHER FORMAL DISPUTES, ETC:**

15. **LIST AND DESCRIBE ANY/ALL LICENSES, PERMITS, ETC., YOU HOLD THAT MAY BE RELATED TO SUPPLYING THE PRODUCTS OR PERFORMING THE SERVICES IN THIS BID/RFP IN THE STATE OF CALIFORNIA, COUNTY OF RIVERSIDE:**

16. THIS FINAL SECTION APPLIES ONLY IF YOU ARE PROPOSING THE USE OF SUBCONTRACTORS.

16A. Provide the following information for each Subcontractor:

a. Subcontractor name and address.

b. Federal tax identification number.

c. If incorporated, identify the state of incorporation.

d. Description of the subcontractor's business organization.

e. Principal type of business.

f. Total number of years in business.

g. Number of years providing services similar in size and scope to those requested in this RFP.

h. **Contractor's gross income/receipts for the prior three (3) years.**

i. **Significant transactional events in the past five (5) years such as: bankruptcies, mergers, acquisitions, initial public offerings (IPO's).**

j. **Percent of turnover in the Subcontractor's organization for each of the last three (3) years of service staff who will be responsible for providing products and services described in this RFP (e.g., Account Manager, Customer Service personnel, etc.).**

COURT ONLINE PROCUREMENT PROCEDURES

The Court has developed this one set of unified COURT ONLINE PROCUREMENT PROCEDURES setting forth the Court Procedures for any/all types of procurements that may appear on the Court Online Procurement Website at www.BidSync.com, including items such as Invitation for Bid, Request for Proposal, Quick Quote, Invitation for Bid, Request for Qualifications, etc.

Definitions for this document only:

- **Bid** – is used in its generic sense, to describe any/all types of procurements that may appear on the Court Online Procurement Website at www.BidSync.com. Additionally, it is used in its generic sense to mean any type of response submitted to any Court procurement, including items such as Bids, Proposals, Formal Bids, Qualifications, etc.

- **Contract** – is used in its generic sense, to describe any formal, final contract between the vendor and the Court, including a contract, purchase order, agreement, order, etc.

- **Vendor** – is used in its generic sense to describe any/all companies or individuals that may participate in any court procurement, including contractors, bidders, proposers, vendors, etc.

1.0 BID CONFERENCES OR WALKTHROUGHS

Times, dates, and additional information related to Bid conferences or walkthroughs will be found on the Court Online Procurement Website at www.BidSync.com.

MANDATORY BID CONFERENCE OR WALKTHROUGH: The Court may require that interested vendors attend a mandatory vendor conference or walkthrough. In the event a vendor is unable to attend a mandatory vendor conference, an authorized representative may attend on their behalf. A representative may only sign in for one vendor. Each vendor must be certain to check-in at the mandatory vendor conference, as the attendance list will be used to ascertain compliance with this requirement. Bids from vendors who do not attend the mandatory vendor conference will not be accepted or considered.

OPTIONAL VENDOR CONFERENCE OR WALKTHROUGH: The Court may hold an optional vendor conference, in which vendor attendance is not mandatory. In the event a vendor is unable to attend an optional vendor conference, an authorized representative may attend on their behalf. A representative may only sign in for one vendor. Vendors are encouraged to attend any optional vendor conferences.

USE OF CONFERENCE CALL: If the Court elects to conduct a vendor conference via conference call, there will not be any opportunity to attend the conference "in person." Limit of two (2) callers per company.

2.0 SUBMITTAL OF BIDS

METHOD OF SUBMITTAL
All Bids shall be electronically submitted via the Court Online Procurement Website at www.BidSync.com. The Vendor is solely responsible for ensuring that the full Bid is submitted via the Court Online Procurement Website, prior to the submission deadline date and time specified. If the Vendor encounters any problems in submitting its Bid electronically, or needs any assistance, please contact www.BidSync.com online or call www.BidSync.com Customer Service toll free at 1 800 990 9339.

The Court is not responsible for and accepts no liability for any technical difficulties or failures that result from conducting business electronically. The Court shall have no obligation to any vendor unless or until the Court and the vendor fully execute a final and definitive contract negotiated between the parties.

Neither the mere selection nor notification by the Court that a vendor has been selected as the successful vendor for the purpose of negotiating a contract, nor the process of negotiating a contract shall create any obligation on the Court. No oral representations, contracts, or modifications shall be binding on the Court. All modifications must be in writing and executed by a properly authorized Court employee.

AMENDMENT OR WITHDRAWAL OF BIDS
A Vendor may amend its Bid prior to the Bid Due Date and Time. Vendor should follow the process as set forth on the Court Online Procurement Website to amend its Bid. If the Vendor encounters any problems in amending its Bid electronically, or needs any assistance, please contact www.BidSync.com online or call www.BidSync.com Customer Service toll free at 1 800 990 9339.

A Vendor may withdraw its Bid at any time prior to the Bid Due Date and Time. Vendor should follow the process as set forth on the Court Online Procurement Website to withdraw its Bid. If the Vendor encounters any problems in withdrawing its Bid electronically, or needs any assistance, please contact www.BidSync.com online or call www.BidSync.com Customer Service toll free at 1 800 990 9339.

Amendments or withdrawals offered in any other manner than described above may not be considered. Bids cannot be amended or withdrawn after the Bid Due Date and Time.

MISTAKE IN BID
If, after the Bid Due Date and Time but prior to a contract award, a Vendor discovers a mistake in their Bid that renders the Vendor unwilling to perform under any resulting contract, the Vendor must immediately notify the Buyer via e-mail or through the Court Online Procurement Website and request to withdraw the Bid. It shall be solely within the Court's discretion as to whether withdrawal will be permitted. If the solicitation contemplated evaluation and award of "all or none" of the items, then any withdrawal must be for the entire Bid. If the solicitation provided for evaluation and award on a line item or combination of items basis, the Court may consider permitting withdrawal of specific line item(s) or combination of items.

ERROR IN SUBMITTED BIDS
If an error is discovered in a Vendor's Bid, the Court may at its sole option allow the Vendor to submit certain corrections. The Court may, at its sole option, allow the Vendor to correct obvious clerical errors. In determining if a correction will be allowed, the Court will consider the conformance of the Bid to the format and content required by the solicitation, the significance and magnitude of the correction, and any unusual complexity of the format and content required by the solicitation.

If the Vendor's intent is clearly established based on review of the complete Bid submitted, the Court may, at its sole option, allow the Vendor to correct an error based on that established intent.

3.0 CONTENT OF BID

Responsive Bids must provide clear, concise, and complete information that satisfy all requirements of the Bid. Bids should be limited to a reasonable length, given the directions and circumstances of the procurement. Do

not submit large amounts of marketing materials or voluminous general information about your company unless such is requested within the Bid.

Prior to execution of a Contract, the following additional item may be required:

1. If Vendor is a corporation, proof that Vendor is in good standing and qualified to conduct business in California (e.g., copies of current business licenses).

Additionally, if the Contract is for the sale of tangible personal property, one of the following items will be required:

2. Proof that the Vendor and all of its affiliates that make sales for delivery into California are currently holders of either:
   - A California seller's permit issued under Revenue and Taxation Code § 6066 et seq.; or,
   - A certificate of registration issued under Revenue and Taxation Code § 6226.

4.0 PROCEDURES RELATING TO THE EVALUATION AND METHOD OF AWARD

QUICK QUOTES ("QQ") / INVITATION FOR BIDS ("IFB"):

Depending upon the individual details of the QQ/IFB, award of a Contract, if made, will be made in accordance with the QQ/IFB: (1) to the Lowest Responsible Vendor; or, (2) awarded on the basis of Value Effectiveness within the competitive framework; or, (3) awarded to other than the Lowest Responsible Bidder based upon Court's valid business reason.

During the evaluation process, the Court may perform certain checks to determine if a Vendor is ineligible for contract award, and may require the Vendor's representative to answer questions with regard to the Vendor's bid. Failure of a Vendor to demonstrate that a statement made in its bid is in fact true may be sufficient cause for rendering a bid non-responsive. Bids that contain false or misleading statements may also be rejected if in the Court's opinion, the information was intended to mislead the evaluation team regarding a requirement of the IFB.

The Court may conduct phone or in-person interviews with any Vendor to clarify aspects of their bids. If conducted in person, interviews will likely be held at the Court's offices, and the Court will not reimburse Vendors for any costs incurred in traveling to or from the interview location. The Court may also seek the assistance of outside technical personnel in reviewing bids.

The Court may approve or disapprove the use of particular subvendors or suppliers.

The Court will make a reasonable effort to execute any contract based on this bid within a timely manner. Exceptions taken by a Vendor may delay execution of a contract. A Vendor submitting a bid must be prepared to use a Court standard contract form rather than its own contract form. The Court reserves the right to reduce the scope of work if it is in the best interest of the Court, or add, delete, and/or modify the terms and conditions prior to execution of the Contract.

Upon award of the contract, the Contract shall be signed by the Vendor and returned to the Court no later than ten (10) business days of receipt of the contract form. Contracts are not effective until executed by both parties and approved by the appropriate Court officials. Any work performed prior to receipt of a fully-executed contract shall be at the Vendor's own risk. If the successful Vendor refuses, delays, or otherwise fails to execute the contract, the Court may award the contract to the next qualified Vendor.

REQUEST FOR PROPOSALS ("RFP"):

Depending upon the individual details of the RFP, award of a Contract, if made, will be made in accordance with the RFP: (1) to the Highest Scoring Vendor; or, (2) awarded on the basis of Value Effectiveness within the competitive framework.

Shortly after bids are opened, each bid will be checked for the presence or absence of the required bid contents. The Court will evaluate bids using the criteria set forth in the Additional Provisions section of this RFP.

For IT RFPs, an evaluation team will initially review the Non-Cost Information portion of the bid to determine its compliance with the RFP's requirements. The Cost Information portion of a bid will only be evaluated if the Non-Cost Information portion of the bid is determined to be responsive.

During the evaluation process, the Court may perform certain checks to determine if a Vendor is ineligible for contract award, and may require the Vendor's representative to answer questions with regard to the Vendor's bid. Failure of a Vendor to demonstrate that a statement made in its bid is in fact true may be sufficient cause for rendering a bid non-responsive. Bids that contain false or misleading statements may also be rejected if in the Court's opinion, the information was intended to mislead the evaluation team regarding a requirement of the RFP. The Court may approve or disapprove the use of particular subvendors or suppliers.

The Court may conduct phone or in-person interviews with any Vendor to clarify aspects of their bid or to assist in finalizing the ranking of bids. The Court is not obligated to hold an interview with every Vendor. If conducted in person, interviews will likely be held at the Court's offices, and the Court will not reimburse Vendors for any costs incurred in traveling to or from the interview location. The Court will notify Vendors regarding interview arrangements. The Court may also seek the assistance of outside technical personnel in reviewing bids.

The Court may request to have product demonstrations as part of the Court's evaluation process. The product demonstrations may be conducted in person, via the web, or through other suitable means or arrangements. The Court will not reimburse Vendors for any costs incurred in traveling to or from the product demonstration location. The Court will notify eligible Vendors regarding demonstration arrangements.

The Court may approve or disapprove the use of particular subvendors or suppliers.

The Court will make a reasonable effort to execute any contract based on this RFP within a timely manner. Exceptions taken by a Vendor may delay execution of a contract. A Vendor submitting a vendor must be prepared to use a Court standard contract form rather than its own contract form. The Court reserves the right to reduce the scope of work if it is in the best interest of the Court, or add, delete, and/or modify the terms and conditions contained in Attachment A prior to execution of the contract.

Upon award of the contract, the contract shall be signed by the Vendor in two original contract counterparts and returned, along with the required attachments, to the Court no later than ten (10) business days of receipt of the contract form. Contracts are not effective until executed by both parties and approved by the appropriate Court officials. Any work performed prior to receipt of a fully-executed contract shall be at the Vendor's own risk. If the successful vendor refuses, delays, or otherwise fails to execute the contract, the Court may award the contract to the next qualified Vendor.

5.0 ADMINISTRATIVE RULES GOVERNING THIS PROCUREMENT

ACCEPTANCE OF TERMS AND CONDITIONS
The Vendor who is awarded a Contract under this Bid must be prepared to accept a Court standard contract rather than its own contract form.

Per instructions in the Bid, if exceptions are identified, the Vendor must submit proposed changes in a clearly presented manner, and provide an explanation or rationale for each exception and/or proposed change. All other terms, conditions, and certifications not excepted to by Vendor shall be deemed to be accepted and affirmed by the Vendor.

Please note that numerous, onerous, burdensome, and/or other material exceptions taken may render a bid non-responsive as determined in the Court's sole discretion. Additionally, any exception to the following minimum terms and conditions will render a bid non-responsive: Vendor certification clauses, Indemnity provisions, Limitation of Liability, and Choice of Law and Jurisdiction provisions.

AUTHORITY TO OBLIGATE OR BIND THE COURT
All contracts and purchase orders with the Court, and all amendments or modifications thereto, are subject to written approval by the Court Presiding Judge (PJ) or Court Executive Officer (CEO). Court personnel other than the PJ and/or CEO do not have actual, apparent, or implied authority to obligate the Court to any contract or purchase order term. Nothing other than written approval by the PJ and/or CEO shall be construed as an offer or acceptance of any contract or purchase order term, as an expression of the Court's assent to any contract or purchase order term, or as an expression of the Court's intent in forming any contract or purchase order. Nothing other than written approval by the PJ and/or CEO shall be construed as a modification, cancellation, waiver, or amendment to any Court contract or purchase order. Correspondence, including emails, shall not establish a trade practice and/or prior course of dealing on the part of the Court in connection with any Court contract or purchase order.

BID PREPARATION COSTS
Vendors submitting Bids do so entirely at their expense. There is no express or implied obligation by the Court to reimburse a Vendor for any costs incurred in preparing or submitting Bids, providing additional information when requested by the Court, participating in any selection interviews or product demonstrations, or participating in this procurement.

CONFIDENTIAL OR PROPRIETARY INFORMATION
Rule 10.500 of the California Rules of Court sets forth comprehensive access provisions applicable to administrative records maintained by a trial court. The Court will make identifiable administrative records available upon request, unless the records are exempt from disclosure under Rule 10.500. Providing copies of records may be subject to payment of a fee by the requestor.

ACCESS TO MATERIAL AND CONFIDENTIAL OR PROPRIETARY INFORMATION
All materials submitted in response to a Bid will become the property of the Court and will be returned only at the Court's option and at the expense of the vendor submitting the bid. A copy of each bid will be retained for official files.

Please be aware that Vendor's response(s) to this Bid may be considered a public record and be made available to anyone who requests a copy.

If a bid contains particular material noted or marked by the vendor as "Confidential" and/or "Proprietary" and if under Rule 10.500 such material would be exempt from public disclosure, then that information may not be made available to the public. However, if the Court considers that under Rule 10.500 such material is not exempt from public disclosure, the material may be made available to the public, regardless of the vendor's notation or markings.

If an entire bid contains a wholesale, blanket, or general marking by the vendor as "Confidential" and/or "Proprietary," under Rule 10.500 it is very unlikely that the entire bid would be exempt from public disclosure. If

the Court considers that under Rule 10.500 such material is not exempt from public disclosure, the material may be made available to the public, regardless of the vendor's notation or markings.

If a vendor is unsure if its confidential and/or proprietary material would fall within the disclosure exemption requirements of Rule 10.500, then it should not include such information in its bid because such information may be disclosed to the public.

CONFIDENTIALITY OF QUESTIONS TO THE COURT

If a Vendor's question relates to a proprietary aspect of its pbid and the question would expose proprietary information if disclosed to competitors, the Vendor may submit the question via email to the assigned Court Buyer conspicuously marking the email as "CONFIDENTIAL." Along with the question, the Vendor must submit a statement explaining why the question is sensitive. If the Court concurs that the disclosure of the question or answer would expose proprietary information, the question will be answered, and both the question and answer will be kept in confidence. If the Court does not concur regarding the proprietary nature of the question, the question will not be answered, and the Vendor will be notified.

CONTACT WITH COURT

Questions regarding this Procurement must be submitted only through the Court Online Procurement Website at www.BidSync.com. Vendors are specifically directed NOT to contact the Court Buyer or other court personnel or consultants regarding this Procurement at any time prior to bid award. Unauthorized contact with any Court personnel or consultants may be cause for rejection of the vendor's bid**.**

DISABLED VETERAN BUSINESS ENTERPRISE PREFERENCE

If the instant solicitation is a Quick Quote, the Court has waived the inclusion of DVBE participation in this solicitation. As such, DVBE incentives will not be awarded or considered in this solicitation.

If the instant solicitation is other than a Quick Quote (i.e. IFB, RFP, etc.), refer to the applicable document posted on BidSync as to whether the Court has waived the inclusion of DVBE participation in this solicitation.

ERRORS IN A BID

If an error is discovered in a vendor's bid, the Court may at its sole option retain the bid and allow the vendor to submit certain arithmetic corrections. In determining if a correction will be allowed, the Court will consider the conformance of the bid to the format and content required by the solicitation, the significance and magnitude of the correction, and any unusual complexity of the format and content required by the solicitation. If prior to an award, the Vendor discovers a mistake in its bid that renders it unwilling to perform under any resulting contract, the vendor must immediately notify the Court in writing and request to withdraw the bid. It shall be solely within the Court's discretion as to whether such withdrawal will be permitted.

ERRORS IN THE PROCUREMENT

If, before the bid due date and time listed in the timeline of the Procurement, a Vendor discovers any ambiguity, conflict, discrepancy, omission, or error in the Procurement, the Vendor must immediately notify the Court via email to he assigned Court Buyer and request modification or clarification of the Procurement. Without disclosing the source of the request, the Court may modify the Procurement before the bid due date and time by releasing an addendum to the solicitation.

If a Vendor fails to notify the Court of an error in the Procurement known to Vendor, or an error that reasonably should have been known to Vendor, before the bid due date and time listed in the timeline of the Procurement, Vendor shall bid at its own risk. Furthermore, if Vendor is awarded the contract, Vendor shall not be entitled to additional compensation or time by reason of the error or its later correction.

If a Vendor discovers an error in the Procurement after the bid due date and time listed in the timeline of the Procurement but before award of the contract, the Vendor may be allowed to withdraw its bid if the Vendor can demonstrate to the Court's satisfaction that: (i) an error exists in the Procurement, (ii) the error materially affected the Vendor's bid, and (iii) the Vendor did not discover the error prior to submission of its bid.

NEWS RELEASES

News releases or other publicity pertaining to the award of a contract may not be issued without prior written approval of the Court.

PAYMENT

Payment terms will be specified in any contract that may be awarded as a result of this Procurement. The Court does not make advance payment for goods or services. Payment is normally made based upon completion of tasks as provided in the contract between the Court and the selected Vendor. The Court may withhold ten percent of each invoice until receipt and acceptance of the final deliverable. The amount withheld may depend upon the length of the project and the payment schedule provided in the contract between the Court and the selected Vendor.

PERIOD OF FIRM PRICING; NEGOTIATIONS

A Vendor's bid is an irrevocable offer for the number of days indicated for this bid on the Court Online Procurement System Website at www.BidSync.com. In the event a final contract has not been awarded within this period, the Court reserves the right to negotiate extensions to this period.

Until a contract resulting from this Procurement is signed, the Court may award a contract in whole or in part, and/or negotiate any or all items with any individual Vendor if it is deemed to be in the Court's best interest. The Court may also solicit best and final offers (BAFO) from any or all contracttential Vendors. A notice of intent to award does not constitute a contract, and confers no right of contract on any Vendor.

PROCUREMENT ADDENDA

The Court may modify this Procurement prior to the date fixed for submission of bids by providing notice to vendors by way of an addendum. If any vendor determines that an addendum unnecessarily restricts its ability to submit a bid, it must notify the Court no later than three (3) business days following the date the addendum was provided. It is each Vendor's responsibility to inform itself of any addendum prior to its submission of a bid.

Pricing shall reflect all addenda issued by the Court. Failure to do so will permit the Court to interpret the bid to include all addenda issued in any resulting contract.

RESERVATION OF RIGHTS

The Court may take any other action related to this Procurement and/or this solicitation process deemed necessary by the Court and permitted by law to meet the needs of the Court and the public community for which it serves.

RIGHT TO REJECT/ACCEPT BIDS

Before the bid due date and time listed in the timeline of the Procurement, the Court may cancel the Procurement for any or no reason. After the bid due date and the time listed in the timeline of the Procurement, the Court may reject any or all bids and cancel the Procurement if the Court determines that: (i) the bids received do not reflect effective competitive; (ii) the cost is not reasonable; (iii) the cost exceeds the amount expected; or (iv) awarding the contract is not in the best interest of the Court. The Court may also disqualify abidor a Vendor should it suspect the Vendor has engaged in collusion with intent to defraud, or other illegal practices in connection with this Procurement.

Classification of any deviation or excpetion within a bid as material or non-mateial is fully within the discretionof the Court. The Court may or may not waive an immaterial deviation or defect in a bid. The Court's waiver of an immaterial deviation or defect shall in no way modify the Procurement or excuse a Vendor from full compliance with Procurement specifications.

The Court reserves the right to accept or reject any line item or combination of line items in a bid. The Court also reserves the right to award zero, one, two, or more contracts through a bid. No guarantee or promise is made by the Court of any sole or exclusive contracting relationship with any Vendor.

The Court may also issue similar bids in the future.

WITHDRAWAL AND RESUBMISSION / MODIFICATION OF BIDS

A Vendor may withdraw its bid at any time before the deadline for submission by following the applilcable guidelines on the Court Online Prcocuremetn System Website at www.BidSync.com. The Vendor may thereafter submit a new or modified bid, again by by following the applilcable guidelines on the Court Online Procurement System Website at www.BidSync.com. Modifications offered in any other manner, oral or written, will not be considered. Bids cannot be changed or withdrawn after the bid due date and time listed in the timeline of the Procurement.

6.0 PROTEST PROCEDURES

The Court intends to be open and fair to all vendors in selecting the best service providers within budgetary and other constraints described in the solicitation document. In applying evaluation criteria and making the selection, members of the evaluation team will exercise their best judgment.

This section contains the procedures that a vendor must follow should it seek to protest either a solicitation specification or an award. Failure of a vendor to comply with the protest procedures set forth herein will render a protest inadequate and/or untimely, and will result in rejection of the protest. Any protest or request for appeal lacking any of the required information below may be rejected by the Protest Hearing Officer or Protest Appeals Officer. In no event will a protest be considered if all bid submittals are rejected, the solicitation was canceled for any reason, or the contract has been awarded.

Please also note that the Court has adopted minimum thresholds for the acceptance of protests. The Court shall reject any protest received for procurement if the procurement is below the applicable thresholds listed below:

Type of Procurement	Threshold
Non-IT Goods	$ 50,000
Non-IT Services	$ 5,000
IT Goods and Services	$100,000

1. SOLICITATION SPECIFICATIONS PROTESTS

1.1. Description. A solicitation specifications protest is a protest alleging that a solicitation document (e.g., Invitation for Bid, Request for Proposal) contains a technical, administrative, or cost specification or requirement that is defective. The specification or requirement may be defective because it is onerous, unfair, or illegal, or imposes unnecessary constraints in procuring less costly or alternate solutions. The protestor bears the burden of proof in showing that the solicitation document contains such a defective technical, administrative, cost specification or requirement.

1.2. Submission and Content of Protest. A vendor who is qualified to protest must submit the protest to the individual listed below. The protest must be in writing, and must be sent by certified or registered mail or overnight courier to the address below:

Protest Hearing Officer:
Luke McDannel, Procurement Manager, or designee
P.O. Box 1547
Riverside, CA 92501

A. The protest must include the following:

1. The name, address, telephone, e-mail, and facsimile numbers of the party protesting or its representative;
2. The title of the solicitation document under which the protest is submitted;
3. The specific alleged defect in the solicitation document;
4. A detailed description of the specific legal and factual grounds of protest and any supporting documentation; and
5. The specific ruling or relief requested.

1.3. Deadline for Submission. The protest must be submitted before the bid closing date.

1.4. Determination of Protest.

A. Upon receipt of a timely and proper protest, the Court will provide a written determination to the protestor. The protest hearing officer may, however, issue a written determination regarding the protest without requesting further information or documents from the protestor. Therefore, the protest submittal must include all grounds for the protest and all evidence available at the time the protest is submitted. If the protestor later raises new grounds or evidence that was not included in the initial protest but which

could have been raised at that time, the Protest Hearing Officer will not consider such new grounds or new evidence.

B. If necessary, the Court may extend the bid closing time to allow for a reasonable time to review the protest. If the protesting party elects to appeal the decision, the protesting party will follow the appeals process outlined below and the Court, at its sole discretion, may elect to withhold the contract award until the protest is resolved or denied or proceed with the award and implementation of the contract.

1.5. Appeals Process. The Protest Hearing Officer's decision shall be considered the final action by the Court unless the protesting party thereafter seeks an appeal of the decision by filing a request for appeal with the Protest Appeals Officer within two (2) Court days of the issuance of the Protest Hearing Officer's written determination.

A. A qualified request for appeal must be submitted to the individual below, must be in writing, and must be sent by certified or registered mail or overnight courier to the address below:

Protest Appeals Officer:
Michael Cappelli, General Counsel, or designee
4050 Main Street
Riverside, CA 92501

B. The justification for appeal is limited to the following:

1. Facts and/or information related to the protest, as previously submitted, that are new and were not available at the time the protest was originally submitted; or
2. The decision of the Protest Hearing Officer was in error of law or regulation.

C. The request for appeal must include the following:

1. The name, address, telephone, e-mail, and facsimile numbers of the party protesting or its representative;
2. The title of the solicitation document to which the protest is related;
3. A copy of the protest as previously submitted;
4. A copy of the protest hearing officer's written determination;
5. A detailed description of the specific legal and factual grounds for the appeal and any supporting documentation; and
6. The specific ruling or relief requested.

The appeal must include all information that the vendor wants the protest appeals officer to consider. The protestor bears the burden of proof of showing that the Protest Hearing Officer's written determination was incorrect.

The protest appeals officer will review the appeal and issue a written determination. The written determination of the protest appeals officer constitutes the final determination of the Court regarding the protest. Issues that could have been raised earlier will not be considered on appeal. If the Protest Appeals Officer determines that the appeal has merit, the Protest Appeals Officer will direct the Protest Hearing Officer to take appropriate remedial action.

2. AWARD PROTESTS

2.1. Description. A solicitation specifications protest is a protest alleging that the Court has committed an error in the award process sufficiently material to justify invalidation of the proposed award, or alleging that the Court's decisions are lacking a rational basis and are therefore arbitrary and capricious. The protestor bears the burden of proof in showing the same. The following do not constitute the absence of a rational basis:

A. The vendor disagrees with the scores assigned by the evaluation team; or

B. The evaluation team could have assigned different scores based on the same information.

2.2. Who May Submit an Award Protest.

A vendor who is qualified to protest must submit the protest to the individual listed below. The protest must be in writing, and must be sent by certified or registered mail or overnight courier to the address below:

Protest Hearing Officer:
Luke McDannel, Procurement Manager, or designee
P.O. Box 1547
Riverside, CA 92501

A vendor may protest the award only if it meets all of the following requirements:

A. The vendor submitted a bid that it believes to be responsive to the solicitation document;

B. The vendor believes that the Court has incorrectly selected another vendor submitting a bid for an award; and

C. For protests of non-IT goods solicitations, the vendor must assert that it is the lowest responsible vendor meeting all specifications.

A person or entity who did not submit a bid may not make an award protest.

2.3. Deadline for Submission. Protests must be received by the Protest Hearing Officer by the following deadlines:

NON-IT GOODS	NON-IT SERVICES	IT GOODS OR SERVICES
The Court must receive the award protest within **24 hours** after the Court issues the intent to award. The vendor will have **10 calendar days** after the Court receives the protest to submit all required information to the Court.	The Court must receive the award protest within **5 court days** after the Court issues the intent to award. The vendor will have **5 calendar days** after the Court receives the protest to submit all required information to the Court.	The Court must receive the award protest within **5 court days** after the Court issues the intent to award. The vendor will have **10 calendar days** after the Court receives the protest to submit all required information to the Court.

2.4. Required Information. An award protest must include the following:

A. The name, address, telephone, e-mail, and facsimile numbers of the party protesting or its representative;
B. The title of the solicitation document under which the protest is submitted;
C. The specific alleged error made by the Court;
D. A detailed description of the specific legal and factual grounds of protest and any supporting documentation; and
E. The specific ruling or relief requested.

Any protest lacking any of this information may be rejected by the Protest Hearing Officer.

2.5. Determination of Protest.

A. Upon receipt of a timely and proper protest, the Court will provide a written determination to the protestor. The Protest Hearing Officer may, however, issue a written determination regarding the protest without requesting further information or documents from the protestor. Therefore, the protest submittal must include all grounds for the protest and all evidence available at the time the protest is submitted. If the protestor later raises new grounds or evidence that was not included in the initial protest but which could have been raised at that time, the Protest Hearing Officer will not consider such new grounds or new evidence.

B. If the Court requires additional time to review the protest and is not able to provide a response within ten (10) court days, the Protest Hearing Officer will notify the vendor.

C. The Court may, in its sole discretion, delay the contract award until the appeal is resolved or proceed with the award and implementation of the contract.

2.6. Appeals Process. The Protest Hearing Officer's decision shall be considered the final action by the Court unless the protesting party thereafter seeks an appeal of the decision by filing a request for appeal with the Protest Appeals Officer within two (2) Court days of the issuance of the Protest Hearing Officer's written determination.

A. A qualified request for appeal must be submitted to the individual below, must be in writing, and must be sent by certified or registered mail or overnight courier to the Protest Appeals Officer at the address listed above.

B. The justification for appeal is limited to the following:

1. Facts and/or information related to the protest, as previously submitted, that are new and were not available at the time the protest was originally submitted; or
2. The decision of the Protest Hearing Officer was in error of law or regulation.

C. The request for appeal must include the following:

1. The name, address, telephone, e-mail, and facsimile numbers of the party protesting or its representative;
2. The title of the solicitation document to which the protest is related;
3. A copy of the protest as previously submitted;
4. A copy of the Protest Hearing Officer's written determination;
5. A detailed description of the specific legal and factual grounds for the appeal and any supporting documentation; and
6. The specific ruling or relief requested.

The appeal must include all information that the vendor wants the Protest Appeals Officer to consider. The protestor bears the burden of proof of showing that the Protest Hearing Officer's written determination was incorrect.

The Protest Appeals Officer will review the appeal and issue a written determination. The written determination of the Protest Appeals Officer constitutes the final determination of the Court regarding the protest. Issues that could have been raised earlier will not be considered on appeal. If the Protest Appeals Officer determines that the appeal has merit, the Protest Appeals Officer will direct the Protest Hearing Officer to take appropriate remedial action.

AGREEMENT FOR IT GOODS / IT SERVICES

BETWEEN

THE SUPERIOR COURT OF CALIFORNIA, COUNTY OF RIVERSIDE

AND

[_____]

AGREEMENT # _____

COMMENCES: _____

TERMINATES: _____

DOLLAR AMOUNT: _____

SUPERIOR COURT OF CALIFORNIA, COUNTY OF RIVERSIDE
STANDARD AGREEMENT FOR IT GOODS AND/OR IT SERVICES

1. In this Agreement, the term "Contractor" refers to ***[Contractor name]***, and the term "Court" refers to the Superior Court of California, County of Riverside.

2. This Agreement is effective _____ ("Effective Date") through_____ ("Expiration Date").

   The Court may extend this Agreement upon the same terms and conditions set forth herein, with the exception of ___, which is/are delineated in Exhibit ___. This Agreement may be extended up to ___ times for ___ periods, through _____. Unless an option is affirmatively exercised in writing by the Court prior to the Expiration Date of this Agreement (or the date specified as the Expiration Date in the notice of an exercise of an option), this Agreement will be deemed terminated as of the Expiration Date and the Court will have no further obligations to Contractor.

3. The maximum amount the Court shall pay Contractor under this Agreement is _____.

4. The purpose of this Agreement is:

   (The purpose listed above is for administrative reference only and does not define or limit the scope or extent of this Agreement.)

5. The parties agree that this Agreement, made up of this Standard Agreement Coversheet and the Exhibits listed below and any referenced attachments ("Contract Documents"), contains the parties' entire understanding related to the subject matter of this Agreement and is mutually binding on the parties in accordance with its terms.

   Exhibit A – Statement of Work
   Exhibit B – Payment Provisions and Invoicing Procedures
   Exhibit C – Standard Business Definitions, Terms and Conditions
   Exhibit D – Additional Definitions, Terms and Conditions Specific to Information Technology (IT)

   It is the intention of both parties that all Contract Documents be read and construed as a unified whole whenever possible. However, in the event of a conflict between the terms of the Contract Documents, the following order of precedence shall govern and determine which terms prevail:

   1. Standard Agreement Cover Sheet(s)
   2. Exhibit A – Statement of Work
   3. Exhibit B – Payment Provisions and Invoicing Procedures
   4. Exhibit D – Additional Definitions, Terms and Conditions Specific to Information Technology (IT)
   5. Exhibit C – Standard Business Definitions, Terms and Conditions

   Any Amendments to this Agreement, starting with the most recent, shall take precedence over existing Contract Documents. In the event of a conflict between an Amendment and the terms of any other Contract Document, the terms of the Amendment shall prevail.

   All Court-issued competitive solicitation and related documents (e.g., the Court's RFP, IFP, Addendum, Questions and Answers), and cost or technical specifications contained in Contractor's bid or proposal submitted in response to the Court's competitive solicitation, may be relied upon for the purpose of clarifying, illustrating, or explaining the intention and understanding of the parties as to the performance of this Agreement.

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6. Insurance. Contractor must procure and maintain the insurance coverages as marked below. Exhibit C (Court Standard Business Definitions, Terms and Conditions 2.0) describes the Court's specific insurance requirements.

- **Exhibit C Section 19.1 Insurance Requirements – General Coverage**

  OR

- **Exhibit C Section 19.2 Insurance Requirements – Specific Coverages**
  - Workers Compensation/Employer's Liability
  - Comprehensive General Liability
  - Business Automobile Liability
  - Professional Liability
  - Sexual Misconduct
  - Commercial Crime

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7. Contract Representatives: Notices, as required by this Agreement, will be provided to the following:

COURT:	**CONTRACTOR:**
Name, Title	Name, Title
Address	Address
City, State, ZIP	City, State, ZIP
Phone #	Phone #
Fax:	Fax:
E-Mail	E-Mail

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8. Project Management Representatives: Correspondence regarding project-specific issues will be provided to the following:

COURT PROJECT MANAGER:	**CONTRACTOR PROJECT LEAD:**
Name, Title	Name, Title
Address	Address
City, State, ZIP	City, State, ZIP
Phone #	Phone #
E-Mail	E-Mail
Fax	Fax

COURT'S SIGNATURE	CONTRACTOR'S SIGNATURE
COURT'S LEGAL NAME: **SUPERIOR COURT OF CALIFORNIA, COUNTY OF RIVERSIDE**	CONTRACTOR'S LEGAL NAME: CONTRACTOR'S TAX IDENTIFICATION NUMBER: CONTRACTOR SELLER PERMIT NUMBER:
BY *(Authorized Signature)* ?	BY *(Authorized Signature)* ?
DATE SIGNED	DATE SIGNED
PRINTED NAME AND TITLE OF PERSON AUTHORIZED TO BIND THE COURT TO THIS AGREEMENT **Sherri R. Carter** **Court Executive Officer**	PRINTED NAME AND TITLE OF PERSON AUTHORIZED TO BIND CONTRACTOR TO THIS AGREEMENT
ADDRESS **Superior Court of California, County of Riverside** **4050 Main Street – Executive Office** **Riverside, CA 92501**	ADDRESS

EXHIBIT A

STATEMENT OF WORK

[as described in the Court's solicitation documents with possible selected provisions from Contractor's bid/proposal, to be further detailed in final contract.

(BUYER'S NOTE: The Statement of Work from the IFB/RFP may become EXHIBIT A-1, and selected relevant portions of the incoming bid/proposal may become EXHIBIT A-2.)

1. **Background and Purpose.**
2. **Period of Performance.**
3. **Description of Goods and/or Services.**
4. **Special Provisions Relating to Contractor's Personnel.**
5. **Inspection and/or Acceptance Criteria.**
6. **Product or Service Warranties.**
7. **Performance Bonds.**
8. **Change Orders.**
9. **Special Provisions Applicable to Certain Agreements.**

END OF STATEMENT OF WORK

EXHIBIT B

PAYMENT PROVISIONS AND INVOICING PROCEDURES

[as described in the Court's solicitation documents with possible selected provisions from Contractor's bid/proposal, to be further detailed in final contract]

1. Compensation.

2. Expenses.

A. Travel. Only if this Agreement specifically provides that the Court will reimburse travel-related expenses, the Court's policies and limits on such reimbursable expenses, as delineated in Exhibit C (Standard Business Definitions, Terms and Conditions), shall apply.

3. Invoicing and Payment.

A. The Court shall have no obligations to pay for any Work until one original and two copies of a correct, itemized invoice for the item is received by the Court's Project Manager. Contractor shall submit monthly invoices to the Court no later than the 15th day following the month for which Work was performed. Contractor shall adhere to reasonable billing guidelines issued by the Court from time to time.

B. The Court shall endeavor to remit payment within thirty (30) days from the Court's approval of a correct, itemized invoice. Each invoice shall be printed on Contractor's standard printed bill form, and shall include: (i) the Agreement and Purchase Order number, (ii) Contractor's name and address, (iii) the nature of the invoiced charge, (iv) the total invoiced amount, and (v) such detail as is reasonably necessary to permit the Court to evaluate the Work performed, including the number of hours worked and the applicable hourly rate. Upon request by the Court, Contractor shall promptly correct any inaccuracy and resubmit the invoice.

C. Progress Payments, Retentions, Withholdings. Only if this Agreement specifically provides for the making of progress payments to Contractor, the Court shall make the progress payments in arrears not more frequently than monthly and at the successful completion of the clearly identifiable project milestones, which Contractor must successfully achieve as indicated in the Agreement. An amount no less than 10 percent of the amount of each installment may be withheld from each progress payment pending final completion of the Work, or, if the Agreement consists of the performance of separate and distinct tasks as distinct from milestones, upon completion of that task.

END OF PAYMENT PROVISIONS AND INVOICING PROCEDURES

EXHIBIT C

SUPERIOR COURT OF CALIFORNIA, COUNTY OF RIVERSIDE
STANDARD BUSINESS DEFINITIONS, TERMS, AND CONDITIONS 2.0

PART A: BUSINESS DEFINITIONS

PART B: TERMS AND CONDITIONS

1. Accounting
2. Amendment
3. Assignment; Subcontracting; Successors
4. Audit; Ownership of Results; Retention of Records
5. Change Orders; Additional Goods and/or Services
6. Choice of Law; Jurisdiction and Venue
7. Confidential Information
8. Conflict of Interest; Prohibition Against Gratuities
9. Consideration
10. Contractor Certification Clauses
11. Contractor Status
12. Counterparts; Signatures
13. Default and Remedies
14. Dispute Resolution
15. Entire Agreement
16. Force Majeure
17. Indemnification
18. Infringement Protection
19. Insurance Requirements
    19.1 General Coverages; or
    19.2 Specific Coverages
20. Limitation of Liability
21. Loss Leader
22. Modification
23. Non-Exclusivity
24. Notices
25. Prior Work
26. Prohibited Bids for End Product of the Agreement
27. Public Access to Records and Information
28. Public Contract Code
29. Scope of Work; Acceptance; Rejection
30. Shipping and Packing Slips
31. Standard of Performance; Warranties; Personnel Requirements; Background Checks
32. Stop Work
33. Survival
34. Termination
35. Time is of the Essence
36. Travel Rate Guidelines
37. Waiver; Severability
38. Work Site
39. Miscellaneous Provisions Applicable to Specific Contracting Situations

PART A: DEFINITIONS

1. **Administrative Office of the Courts (AOC)**: Staff agency to the Judicial Council of California, the policy-making body of the California Court system.
2. **Agreement**: Entire integrated agreement, including all Contract Documents, Exhibits, referenced Attachments, and Amendments incorporated therein, signed by the Court and Contractor, for performance of the Work.
3. **Agreement Amount**: Total dollar amount of the Agreement.
4. **Amendment**: Written contract document issued by the Court, and signed by both Contractor and the Court, modifying the Agreement and identifying any of the following: (1) change in the Work; (2) change in Agreement Amount; (3) change in schedule for delivery and performance of Work; or (4) any change to other terms and conditions.
5. **Appropriation Year**: Authorized period of time for government spending for a defined purpose. The Appropriation Year for state-funded agreements ends on June 30th of each year. The Appropriation Year for federally funded agreements ends on September 30th of each year.
6. **Bid:** A response to a competitive solicitation issued by the Court, regardless of the type of solicitation document used by the Court (e.g., Request for Quote, Invitation for Bid, or Request for Proposal).
7. **Certificate of Insurance:** A document that provides evidence that an insurance policy has been underwritten and that includes a statement of the policy coverage.
8. **Compensation**: All remuneration owed to Contractor in respect of Work, including Contractor's professional fees, direct costs (including filing fees), indirect costs (including overhead expenses), profit, and taxes.
9. **Confidential Information**: (i) Any financial, statistical, personal, technical, or other data or information that is designated confidential by a party to the Agreement; (ii) all information related to the business of the Court that may be obtained orally, in writing, or from any source, or on any court mainframe, court or judicial branch computer network or workstation, and all software, whether owned or licensed by the Court and whether accessed by Contractor by direct or remote access method; (iii) any information relating to the methods, processes, financial data, lists, apparatus, statistics, programs, research, development, or related information of the Court concerning the past, present, or future official business and/or the results of the provision of services to the Court; and (iv) information relating to Court personnel and Court users. Confidential Information does not include: (i) information that is already known by the receiving party, free of obligation of confidentiality to the disclosing party; (ii) information generally and lawfully available to the public, other than as a result of disclosure by the receiving party in breach of the Agreement; (iii) information independently developed by the receiving party without reference to the Confidential Information; and (iv) information that the receiving party rightfully obtains from a Third Party free of the obligation of confidentiality to the disclosing party.
10. **Consulting Services**: Refers to the services performed under "Consulting Services Agreements," which are defined in Public Contract Code § 10335.5, substantially, as contracts that: (1) are of an advisory nature; (2) provide a recommended course of action or personal expertise; (3) have an end product that is basically a transmittal of information, either written or oral, that is related to the governmental functions of state agency administration and management and program management or innovation; and (4) are obtained by awarding a contract, a grant, or any other payment of funds for services of the above type. The end product may include anything from answers to specific questions to design of a system or plan, and includes workshops, seminars, retreats, and conferences for which paid expertise is retained by contract. "Consulting Services Agreements" do not include: (1) Contracts between a state agency and the federal government; or (2) Contracts with local agencies, as defined in Revenue and Taxation Code § 2211, to subvene federal funds for which no matching state funds are required.
11. **Contractor:** The person or entity entering into an Agreement with the Court.
12. **Court**: The Superior Court of California, County of Riverside.
13. **Court Personnel**: Members, justices, judges, judicial officers, subordinate judicial officers, employees, and agents of the Court.
14. **Court Property**: Includes monetary items such as currency, coins, precious metals, checks, notes, bonds, negotiable instruments, and securities, physical structures or real property, and all other things of value.
15. **Data**: Information, including, but not limited to, articles, papers, charts, records, reports, studies, research, memoranda, computation sheets, questionnaires, surveys, and other documentation.
16. **Deliverable**: Hardware, software, firmware, documentation, services or other items, specified in the Agreement, that Contractor shall complete and deliver or submit to the Court.
17. **DVBE**: An acronym for Disabled Veterans Business Enterprise.
18. **Expiration Date**: The last day of the Term, unless the Initial Term is extended by exercise of an option. In that event, the Expiration Date will instead refer to the date specified as the expiration date in the notice of

exercise of the option.

19. **Initial Term**: The period commencing on the Effective Date and expiring on the Expiration Date set forth on the coversheet of the Agreement.
20. **Goods:** Goods to be furnished and/or serviced by Contractor as described in Exhibit A.
21. **Judicial Branch Contract Law (JBCL)**: Public Contract Code §§ 19201-19210.
22. **Judicial Branch Entity (JBE)**: State of California public entity that includes the Supreme Court of California, any superior Court, any Court of appeal, the Judicial Council of California, the Administrative Office of the Courts, or the Habeas Corpus Resource Center, as defined in California Government Code § 900.3. These entities comprise the "Judicial Branch."
23. **Judicial Branch Personnel**: Members, justices, judges, judicial officers, subordinate judicial officers, employees, and agents of a Judicial Branch Entity.
24. **Loss**: As used in the indemnity provisions of the Agreement, includes any actions, claims, demands, causes of action, fines, penalties, losses, liabilities, damages, costs, expenses, and attorneys' fees.
25. **Material**: All types of tangible personal property, including but not limited to goods, supplies, equipment, commodities, and information and telecommunication hardware and software.
26. **Notice**: Written document signed by an authorized representative of either party to the Agreement, providing formal notification and sent by either:
    (1) depositing in the U. S. Mail or commercial express mail, prepaid, to the address of the authorized representative of the other party. Notice will be effective on the date of receipt; or
    (2) hand-delivery to the other party's authorized representative, as set forth in the Agreement. This Notice shall be effective on the date of receipt.
27. **Option Period**: The period, if any, through which the Agreement may be extended by a party.
28. **Progress Payment**: Partial payment following the completion of a deliverable, milestone, or stage of progress under the Agreement.
29. **Project Lead**: Contractor's representative who will operate as the main interface with the Court regarding the Work to be performed under the Agreement.
30. **Project Manager**: Court representative who will operate as the main interface between Contractor and the Court regarding the Work to be performed under the Agreement.
31. **Proposal**: Response to a Request for Proposal that describes the offeror's approach, statement of work, schedule and cost to provide goods or services, as well as the ability to meet other relevant criteria established by the Court.
32. **Services**: Services to be performed by Contractor as described in Exhibit A.
33. **Statement of Work (SOW)**: Detailed description or reference to the object of a contract (e.g., goods, services, information technology).
34. **Stop Work Order**: Written notice to Contractor from the Court, directing Contractor to stop performance of Work for a period of ninety (90) days following delivery of the order to Contractor, or for a longer period by mutual agreement of the parties.
35. **Subcontractor**: The person or entity that has a contract (as an "independent contractor" and not an employee) with Contractor to provide some portion of the Work of the Agreement.
36. **Term**: Comprises the Initial Term and any Option Period.
37. **Termination Date**: Has the same meaning as Expiration Date unless the Agreement is validly terminated before the applicable Expiration Date, in which case Termination Date means the effective date the Agreement is validly terminated.
38. **Third Party**: Any individual or entity not a party to the Agreement.
39. **Work**: Any or all labor, goods, services, Deliverables, equipment, supplies, Materials, tasks, and any other items or activities to be furnished under the Agreement or are necessary for the performance and completion of Contractor's obligations in compliance with the requirements of the Agreement. Work may also include Tasks, Deliverables, and/or submittals required by individual work order(s).

PART B: TERMS AND CONDITIONS

1. **Accounting.** Contractor will maintain a system of accounting and internal controls that meets Generally Accepted Accounting Principles (U.S. GAAP).
2. **Amendment.** No modifications, alterations, changes, or waiver to the Agreement or any of its terms shall be valid or binding unless accomplished by a written amendment, signed by both parties, that specifically references and incorporates the terms of the Agreement into the written amendment.
3. **Assignment; Subcontracting; Successors.**

A. Assignment.

(1) The Court may assign the Court's rights and duties (or subcontract portions of the Agreement) to any other public entity. The Court shall notify Contractor in writing within 30 days following the assignment.

(2) In addition, either party may assign its rights and duties or subcontract portions of the Agreement to a third party, but only if the non-assigning party gives prior written consent to the assigning party. Consent may be withheld for any reason or no reason. If a non-assigning party does consent, the consent will take effect only if there is a written agreement between the assigning/subcontracting party and all assignees/subcontractors, stating that the assignees/subcontractors:

(a) are jointly and severally liable to the non-assigning party for performing the duties in the Agreement of the assigning/subcontracting party;
(b) affirm the rights granted in the Agreement to the non-assigning party;
(c) make the representations and warranties made by the assigning/subcontracting party in the Agreement; and
(d) appoint the non-assigning party an intended third party beneficiary under the written agreement with the assigning/subcontracting party.

(3) No assignment or subcontract will release either party of its duties under the Agreement.

B. Subcontracting. Contractor may engage a subcontractor to perform any portion of the Work, but only with the prior written consent of the Court. Any subcontracting without the Court's written consent is a material breach of the Agreement. Subcontractors will be subject to the same terms and conditions applicable to the Contractor under the Agreement and shall incorporate the Agreement into any subcontracting relationship. Contractor shall be liable for all subcontractor acts or omissions, including indemnity obligations.

C. Successors. The Agreement binds the parties as well as their heirs, successors, executors, administrators, and assignees.

4. **Audit; Ownership of Results; Retention of Records.**

A. Audit. Upon reasonable notice, Contractor will provide to the Court, to any federal or state entity with monitoring or reviewing authority, or to the Court's authorized representatives, access to and the right to examine and audit all records and documents relating to performance and billing under the Agreement, and, as necessary, to determine compliance with relevant federal, state, and local statutes, rules, and regulations, subject only to a lawyer's duty of confidentiality owed to a represented party. Contractor agrees to provide the Court with all relevant information requested, and will permit access to its premises at reasonable times, for the purpose of interviewing employees and inspecting and copying any relevant records. Unless otherwise agreed upon, Contractor shall correct errors and deficiencies by the 20th day of the month following the review or audit.

B. Ownership. Unless otherwise provided in the Agreement, the Court is the exclusive owner of all Materials collected and produced in connection with the Work. Upon the Termination Date (subject to any mutually agreed period of continuation of Work), or upon the Court's notice at any time, and subject only to the duty of confidentiality owed to a represented party, Contractor shall give original materials to

the Court or to another party at the Court's direction.

C. Copies. Contractor may retain copies of any original documents Contractor provides to the Court.

D. Retention of Records. Contractor will maintain all financial data, supporting documents, and all other records relating to performance and billing under the Agreement for a period in accordance with state and federal law. The minimum retention period will be four (4) years from the date of the submission of the final payment request or until audit findings are resolved, whichever is later.

5. Change Orders; Additional Goods and/or Services.

A. Change Orders.

(1) Due to the nature of the work to be accomplished by the Agreement, the specific goods, services, and timing needed may not be known until performance is underway. Therefore, the Court reserves the right to require Contractor to make changes in the Work that are within the scope of the Agreement without an Amendment by way of a Change Order issued by the Court's Project Manager. Such changes may include modifications to the Work, or changes in the timing or level of effort for the Work, as delineated in the Statement of Work.

(2) The Change Order documents the changes to be made, which may include: a) a description of the proposed change and the reasons for the change; b) a summary of the total compensation to be paid Contractor with a breakdown of tasks and costs, including any reduction in work or costs resulting from the change; and c) statement of the expected impact on the Work.

(3) Contractor should not proceed with any change until Contractor receives a Change Order from the Court's Project Manager. All costs for changes performed by Contractor without the Court's prior written approval will be at Contractor's sole risk and expense.

B. Additional Goods and/or Services. Although the Court has exercised diligence in providing a full list of Goods, Services, and/or specifications contained in the Statement of Work, the Court reserves the right to require Contractor to provide additional Goods and/or Services up to ten percent (10%) in quantity or ten percent (10%) of the value of the Agreement Amount, with payment to Contractor commensurate with the rates established in the Statement of Work, or if none, as mutually agreed upon.

6. Choice of Law; Jurisdiction and Venue. California law, without regard to its choice-of-law provisions, governs the Agreement. Jurisdiction and venue for any legal action arising from the Agreement shall exclusively reside in Riverside, California, and the parties hereby consent to the jurisdiction and venue of such courts.

7. Confidential Information.

A. Confidential Information. While performing Work under the Agreement, Contractor and its subcontractors may gain access to Confidential Information that, if disclosed to third parties, may be damaging to the Court, its personnel, court users, or other government entity. Neither Contractor nor its subcontractors acquires any right or title to the Confidential Information, and Contractor and its subcontractors agree not to disclose any Confidential Information to any third party. All Confidential Information disclosed to Contractor or its subcontractor will be held in strict confidence and used only in performance of Work under the Agreement. If the Court requests additional security measures to protect Confidential Information from disclosure, Contractor shall not unreasonably refuse or delay to adopt the same. In the event of any unauthorized disclosure or loss of Confidential Information, Contractor will immediately provide notice to the Court, with pertinent details of the unauthorized disclosure or loss, and any remedial measures taken.

B. Permissible Disclosures. Contractor may disclose the Court's Confidential Information only on a "need to know" basis to Contractor's employees and subcontractors and any representatives of the Court who are working on the project and who have also executed confidentiality agreements that protect the Court's confidential information. Additionally, Contractor may disclose the Confidential Information, to the extent necessary to comply with any applicable law, rule, regulation, or ruling, provided Contractor gives advance notice to the Court.

C. Publicity. Contractor shall not make any public announcement or press release about the Agreement without the prior written approval of the Court.

D. Specific Performance. Contractor understands that a default under this section will result in irreparable damage for which no adequate remedy will be available. Accordingly, injunctive or other equitable relief is a remedy that the Court will be entitled to seek.

8. Conflict of Interest; Prohibition Against Gratuities.

A. Conflict of Interest.

(4) Contractor covenants that it and its Subcontractors presently have no interest, and will acquire no interest, which would directly or indirectly conflict in any manner or to any degree, with the full and complete performance required under the Agreement. Contractor further agrees to submit full disclosure statements, if required by law to do so, pursuant to the requirements of the California Fair Political Practices Act or any other applicable federal or state law, regulation, or conflict of interest code.

(5) Contractor and its Subcontractors and employees will not participate in proceedings that involve the use of Court funds or that are sponsored by the Court if the Contractor, its Subcontractors, or their employees, principals, partners, family members, or organizations have a financial interest in the outcome of the proceedings.

(6) Contractor and its Subcontractors and employees will not engage in actions resulting in, or creating the appearance of:
(a) use of an official position with the government for private gain;
(b) preferential treatment to any particular person associated with the Work or Agreement;
(c) impairment of the Court's independence or impartiality;
(d) a decision made outside official channels; or
(e) adverse effects on the confidence of the public in the integrity of the Court.

B. Prohibition Against Gratuities.

(1) Contractor covenants that no gratuities, in the form of entertainment, gifts, or otherwise, were offered by Contractor or any agent, director, or representative of Contractor, to any officer, official, agent, or employee of the Court, in an effort to secure the Agreement or favorable treatment with respect to any determinations concerning the performance of the Agreement.

(2) For any breach or violation of this covenant, the Court has the right to terminate the Agreement for cause, wither whole or in part. Any loss or damage sustained by the Court in procuring, on the open market, replacement goods or services that Contractor agreed to provide, will be borne and paid for by Contractor. The Court's rights and remedies under this provision are in additional to any other rights and remedies provided by law or under the Agreement.

9. Consideration.

A. The consideration paid to Contractor is the entire compensation for all Work performed under the Agreement, including all of Contractor's expenses incurred, such as travel and per diem expenses, unless otherwise expressly provided.

B. Payment Does Not Imply Acceptance of Work. The Court's payment will not relieve Contractor from its obligation to replace unsatisfactory Work, even if the unsatisfactory character of such Work may have been apparent or detected at the time such payment was made. Work, Data, or components that do not conform to the requirements of the Agreement will be rejected, and will be replaced by Contractor, without delay or additional cost to the Court.

C. Disallowance. If Contractor receives payment from the Court for a service or reimbursement that is later disallowed or rejected by the Court, Contractor will promptly refund the disallowed amount to the Court upon the Court's request. At its option, the Court may offset the amount disallowed from any payment

due to Contractor, under the Agreement or any other agreement.

D. Availability of Funds. The Court's obligation to compensate Contractor is subject to the availability of funds. The Court shall notify Contractor if funds become unavailable or limited during the term of the Agreement.

10. Contractor Certification Clauses. Contractor certifies that the representations below are true and will remain true throughout the term of the Agreement. Contractor shall have an affirmative duty to promptly notify the Court if any of these representations are not or are no longer true:

A. Authority. Contractor has authority to enter into and perform its obligations under the Agreement, and Contractor's signatory has authority to bind Contractor to the Agreement. The Agreement constitutes a valid and binding obligation of Contractor, enforceable in accordance with its terms. Contractor is qualified to do business and in good standing in the State of California.

B. Not an Expatriate Corporation. Contractor is not an expatriate corporation or subsidiary of an expatriate corporation within the meaning of Public Contract Code § 10286.1, and is eligible to contract with the Court.

C. Sales and Use Tax Collection. Contractor collects and remits sales and use taxes as and to the extent required under the Revenue and Taxation Code.

D. No Gratuities. Contractor has not directly or indirectly offered or given any gratuities (in the form of entertainment, gifts, or otherwise), to any Judicial Branch Personnel with a view toward securing the Agreement or securing favorable treatment with respect to any determinations concerning the performance of the Agreement.

E. No Conflict of Interest. Contractor has no interest, and will not engage in any interest, that would constitute a conflict of interest under Public Contract Code §§ 10365.5, 10410 or 10411, which, in general, limit entering into follow-on contracts with a consultant who would benefit thereby from the consultant's advice provided under the first contract; Government Code §§ 1090 et seq. or §§ 87100 et seq.; or California Rules of Court, rule 10.103 or 10.104, which restrict employees and former employees from contracting with Judicial Branch Entities.

F. No Interference with Other Contracts. To the best of Contractor's knowledge, the Agreement does not create a material conflict of interest or default under any of Contractor's other contracts.

G. No Litigation. No suit, action, arbitration, or legal, administrative, or other proceeding or governmental investigation is pending or, to Contractor's knowledge, threatened against or affecting Contractor or Contractor's business, financial condition, or ability to perform the Agreement, except any suit, action, arbitration, proceeding, or investigation that individually or in the aggregate with others will not or would not have a material adverse effect on Contractor's business, the validity or enforceability of the Agreement, or Contractor's ability to perform the Agreement.

H. Compliance with Laws Generally. Contractor complies in all material respects with all laws, rules, and regulations applicable to Contractor's business and services, and pays all undisputed debts when they come due.

I. Work Eligibility. All personnel assigned to perform the Agreement are able to work legally in the United States and possess valid proof of work eligibility.

J. Drug Free Workplace. Contractor provides a drug-free workplace as required by California Government Code §§ 8355 through 8357.

K. No Harassment. Contractor does not engage in unlawful harassment, including sexual harassment, with respect to any persons with whom Contractor may interact in the performance of the Agreement, and Contractor takes all reasonable steps to prevent harassment from occurring.

L. Non-discrimination. Contractor complies with the federal Americans with Disabilities Act (42 U.S.C. § 12101 et seq.), and California's Fair Employment and Housing Act (Government Code §§ 12990 et seq.)

and associated regulations (Code of Regulations, title 2, §§ 7285 et seq.). Contractor does not unlawfully discriminate against any employee or applicant for employment because of age (40 and over), ancestry, color, creed, disability (mental or physical) including HIV and AIDS, marital or domestic partner status, medical condition (including cancer and genetic characteristics), national origin, race, religion, request for family and medical care leave, sex (including gender and gender identity), and sexual orientation. Contractor has notified in writing each labor organization with which Contractor has a collective bargaining or other agreement of Contractor's obligations of non-discrimination.

M. Prohibition Against Hiring Court Employees. Contractor certifies and will require all Subcontractors to certify to the following: "Former Court employees will not be offered employment position for two years from the date of separation, if that employee participated in the decision-making process relevant to the Agreement, or for one year from the date of separation if that employee was in a policy-making position in the same general subject area as the proposed Agreement, within the prior twelve-month period of Court employment."

N. Provisions regarding Domestic Partners, Spouses, and Gender Discrimination. If the Agreement provides for total Compensation of more than $100,000, Contractor is in compliance with Public Contract Code § 10295.3, which, subject to specified exceptions, generally prohibits discrimination in the provision of benefits between employees with spouses and employees with domestic partners, or discriminates between employees with spouses or domestic partners of a different sex and employees with spouses or domestic partners of the same sex, or discriminates between same-sex and different-sex domestic partners of employees or between same-sex and different-sex spouses of employees.

O. Provisions regarding Compliance with National Labor Relations Board Orders. If the Agreement provides for making any purchase of goods or services from a private entity, except for a purchase of goods by credit card for an amount less than $2,500 from any one Contractor (but not to exceed in the aggregate $7,500 per year from the Contractor), no more than one, final unappealable finding of contempt of court by a federal court has been issued against Contractor within the immediately preceding two-year period because of Contractor's failure to comply with an order of a federal court requiring Contractor to comply with an order of the National Labor Relations Board. Contractor swears UNDER PENALTY OF PERJURY that this representation is true.

P. Provisions regarding Compliance with the Sweatfree Code of Conduct. If the Agreement provides for the furnishing of equipment, materials, or supplies other than public works, or for the laundering of apparel, garments or corresponding accessories:

(1) No apparel, garments or corresponding accessories, equipment, materials, or supplies furnished to the Court under the Agreement have been laundered or produced in whole or in part by sweatshop labor, forced labor, convict labor, indentured labor under penal sanction, abusive forms of child labor or exploitation of children in sweatshop labor, or with the benefit of sweatshop labor, forced labor, convict labor, indentured labor under penal sanction, abusive forms of child labor or exploitation of children in sweatshop labor. Contractor further declares UNDER PENALTY OF PERJURY that it adheres to the Sweatfree Code of Conduct as set forth on the California Department of Industrial Relations website located at www.dir.ca.gov, and Public Contract Code § 6108.

(2) Contractor cooperates fully in providing reasonable access to Contractor's records, documents, agents, and employees, and premises if reasonably required by authorized officials of the Department of Industrial Relations, or the Department of Justice to determine Contractor's compliance with the requirements under paragraph (1) and shall provide the same rights of access to the Court.

Q. Provisions regarding Compliance with the Child Support Compliance Act. If Contractor is a private entity, and the Agreement provides for Compensation of $100,000 or more:

(1) Contractor recognizes the importance of child and family support obligations and fully complies with all applicable state and federal laws relating to child and family support enforcement, including, but not limited to, disclosure of information and compliance with earnings assignment orders, as provided in Chapter 8 (commencing with section 5200) of Part 5 of Division 9 of the Family Code; and

(2) Contractor provides the names of all new employees to the New Hire Registry maintained by the California Employment Development Department.

R. Provisions regarding Discharge Violations. If Contractor is a private entity, Contractor is not in violation of any order or resolution not subject to review promulgated by the State Air Resources Board or an air pollution control district; or subject to any cease and desist order not subject to review issued pursuant to Section 13301 of the Water Code for violation of waste discharge requirements or discharge prohibitions. Contractor has not been finally determined to be in violation of provisions of federal law relating to air or water pollution.

S. Provisions regarding the Electronic Waste Recycling Act. If the Agreement provides for the purchase or lease of covered electronic devices under the Electronic Waste Recycling Act of 2003, Public Resources Code §§ 42460 et seq., Contractor complies with the requirements of that Act, and Contractor maintains documentation and provides reasonable access to its records and documents that evidence compliance.

T. Provisions regarding Darfur Contracting Certification. Public Contract Code §§ 10475 – 10481 apply to any bidder or proposer that currently or within the previous three years has had business activities or other operations outside of the United States and seeks to submit a bid or proposal to the Superior Court of California, County of Riverside. Contractor certifies, UNDER PENALTY OF PERJURY, that it is either (a) not a scrutinized company as defined in Public Contract Code § 10476; or (b) is a scrutinized company that has been granted express permission by the Superior Court of California, County of Riverside to submit a bid or proposal. A bidder or proposer who has submitted a false certification may be liable for civil penalties or other measures.

U. Provisions regarding Plastic Trash Bag Law. Public Resources Code §§ 42290 et seq., requires any plastic trash bag supplier, manufacturer or wholesaler, or any of its divisions, subsidiaries, or successors, to be compliant with the Recycled Content Plastic Trash Bag Law, regardless of the goods or services being provided under the Agreement. Contractor certifies, UNDER PENALTY OF PERJURY, that it, and its divisions, subdivisions, and successors, comply with the Recycled Content Plastic Trash Bag Law, and shall continue to comply with the same throughout the term of the Agreement.

V. Provisions Regarding Parts Cleaning. If the Agreement involves parts cleaning, Contractor shall use recycled solvents, to the maximum extent economically feasible, in the performance of Work under the Agreement. Contractor further certifies, UNDER PENALTY OF PERJURY, that any post-consumer or secondary materials provided or used in the Work by Contractor meet all California minimum post-consumer content requirements.

W. Provisions Regarding Document Printing Agreements. If the Agreement is for printing documents, Contractor shall use recycled products, to the maximum extent economically feasible, in the performance of Work under the Agreement. Contractor further certifies, UNDER PENALTY OF PERJURY, that any recycled products provided or used in the Work by Contractor meet all California minimum post-consumer content requirements.

X. Provisions Regarding Iran Contracting Act. If the Agreement is for the purchase of goods or services of $1,000,000 or more, Contractor further certifies, UNDER PENALTY OF PERJURY, that it is not on the current list of persons engaged in investment activities in Iran created by the California Department of General Services pursuant to California Public Contract Code section 2203(b).

Y. Provisions Regarding Conflict Minerals. If the Agreement is for the purchase of goods or services related to or involving “conflict minerals” (columbite-tantalite, cassiterite, wolframite, or gold), Contractor further certifies, UNDER PENALTY OF PERJURY, that it is not a “scrutinized company,” as defined by California Public Contract Code section 10490(b).

Z. Provisions Regarding Delinquent Taxpayers. If the Agreement is for non-IT goods or services, Contractor further certifies, UNDER PENALTY OF PERJURY, that it is not a person or entity identified by the Franchise Tax Board or the Board of Equalization as one of the 500 largest tax delinquents.

11. Contractor Status.

A. Independent Contractor. Contractor is an independent contractor to the Court. No employer-employee, partnership, joint venture, or agency relationship exists between Contractor and the Court. Contractor has no authority to bind or incur any obligation on behalf of the Court. Except as expressly stated, Contractor has no authority or responsibility to exercise any rights or power vested in the Court. Contractor, its employees, or anyone working under Contractor, shall not qualify for workers' compensation or other fringe benefits of any kind through the Court. If any governmental entity concludes that Contractor is not an independent contractor, the Court may terminate the Agreement immediately upon notice. Alternatively, Contractor may agree to a reduction in the Court's financial liability, so that the Court's total costs under the Agreement do not exceed the Agreement Amount.

B. Exclusive Control of Means and Method of Performance.

(1) Contractor's employees will be entirely and exclusively under the direction, supervision, and control of Contractor. All terms of employment including hours, wages, working conditions, discipline, hiring, and termination, or any other employment issues or requirements of law, will be determined by Contractor.

(2) Contractor will issue W-2 forms or other forms as required by law for income and employment tax purposes for all of Contractor's employees, consultants, and independent contractors.

(3) If the Internal Revenue Service or any other federal or state governmental entity should investigate or challenge Contractor's independent status with respect to the Court, the parties agree that (i) each will inform the other party of such investigation or challenge; and (ii) the Court will have the right, but not the obligation, to participate in any discussion or negotiation occurring with the federal or state entity, regardless who initiates such discussions or negotiations.

(4) Contractor will indemnify, defend, and hold the Court harmless from all claims, costs, and liabilities resulting from third-party actions alleging an employment relationship between the Court and any Contractor or Subcontractor personnel.

(5) Contractor will determine the method, details, and means of performing or supplying the Work under the Agreement. Contractor will be responsible to the Court only for the requirements and results specified in the Agreement, and will not be subjected to the Court's control with respect to the physical action or activities of Contractor in fulfillment of the Agreement. Contractor will have the "right to control" and bear the sole responsibility for the job site conditions and safety.

C. Permits, Laws, and Regulations.

(1) Contractor must observe and comply with all applicable laws, rules, and regulations affecting the Work. During the term of the Agreement, Contractor will obtain and keep in full force and effect, all permits and licenses necessary to accomplish the Work, and ensure that all subcontractors performing Work under the Agreement comply with the same. Such permits and licenses will be made available to the Court, upon request.

(2) Contractor will promptly provide Notice to the Court of any conflict discovered between the Agreement and any applicable laws, rules, regulations, and/or permits and licenses, and await resolution of the conflict. If Contractor proceeds with the Work in question without resolution of the conflict, Contractor will be solely liable for any costs, fines, penalties, or damages that accrue, including costs for remedial work required to comply with such requirements.

12. Counterparts; Signatures.

A. Counterparts. The Agreement may be executed in counterparts, each of which is considered an original.

B. Signatures. Unless otherwise provided, the signatures required for execution of the Agreement may be made by manual signature on an original document, photocopy, or facsimile copy, or by digital signature that conforms to California Government Code § 16.5 and all California regulations promulgated thereunder, including California Code of Regulations, title 2, division 7, chapter 10.

13. Default and Remedies.

A. Default. Unless otherwise provided, a default exists under the Agreement if:

(1) Contractor fails or is unable to meet or perform any of Contractor's duties under the Agreement, or furnishes nonconforming Goods or Services, and this failure is not cured within ten (10) days' following notice of default or is not capable of being cured within this cure period;

(2) Contractor or Contractor's creditors file a petition as to Contractor's bankruptcy or insolvency, or Contractor is declared bankrupt, becomes insolvent, makes an assignment for the benefit of creditors, goes into liquidation or receivership, or otherwise loses legal control of its business;

(3) Contractor makes or has made under the Agreement any representation or warranty that is or was incorrect, inaccurate, or misleading; or

(4) Any act, condition, or thing required to be fulfilled or performed by Contractor to (i) enable Contractor lawfully to enter into or perform its obligations under the Agreement, (ii) ensure that these obligations are legal, valid, and binding, or (iii) make the Agreement admissible when required is not fulfilled or performed.

B. Notice of Default. Contractor shall notify the Court immediately if Contractor defaults, or if a third party claim or dispute is brought or threatened that alleges facts that would constitute a default under the Agreement.

C. Remedies following Contractor Default.

(1) Available Remedies. The Court may do any of the following:

(a) Withhold all or any portion of a payment otherwise due to Contractor, exercise any other rights of setoff as may be provided in the Agreement or any other agreement between a Court and Contractor, or charge to the Contractor any costs to the Court arising from Contractor's default, including costs to complete or correct the Work;

(b) Require Contractor to enter into non-binding mediation;

(c) Exercise, following notice, the Court's right of early termination of the Agreement as provided below; or

(d) Seek any other remedy available at law or in equity.

(2) Remedies Cumulative. All remedies provided for in the Agreement may be exercised individually or in combination with any other available remedy.

14. Dispute Resolution. The Court and Contractor will attempt, in good faith, to resolve any disputes informally. Contractor will meet with the Court's Project Manager or other designated representative to discuss the matter and any actions necessary to resolve a dispute.

A. Escalation

(1) If a dispute remains unresolved either party may give Notice requesting each party's Chief Executive Officer ("CEO") or designated representative to meet, exchange information and attempt resolution within fifteen days of the effective date of the Notice.

(2) If the matter is not resolved as set forth above, the aggrieved party will submit a second Notice which will:

(a) provide detailed factual information;
(b) identify the specific provisions in the Agreement on which any demand is based;
(c) advise if the demand involves a cost adjustment and, if so, provide the exact amount, accompanied by all supporting records; and
(d) attach a declaration that the demand is made in good faith, the supporting data are accurate and complete, and the amount requested properly reflects the necessary adjustment. Notice will be

signed by an authorized representative of the aggrieved party.

(3) Each party will comply with reasonable requests for additional information. Any additional information will be provided within fifteen (15) days after receipt of a written request, unless otherwise agreed.

B. Confidentiality During Dispute Resolution. All dispute resolution negotiations are considered confidential, and will be treated as compromise and settlement negotiations, to which California Evidence Code § 1152 applies.

C. Continued Performance of Work. Pending final resolution of any dispute, Contractor agrees to proceed diligently with the performance of the Work, including Work associated with the dispute, unless otherwise directed by the Court. Contractor's failure to diligently proceed in accordance with the Court's instructions will be considered a material breach of the Agreement.

15. Entire Agreement.

A. Headings or captions to the provisions of the Agreement are solely for the convenience of the parties, are not part of the Agreement, and will not be used to interpret or determine the validity of the Agreement.

B. The Agreement was negotiated between the parties, and neither party "prepared" the Agreement for purposes of California Civil Code § 1654. Any ambiguity will not be construed against the drafter, but rather the terms and provisions will be given a reasonable interpretation.

C. The Agreement, including all documents incorporated by reference, constitutes the entire and final understanding of the parties regarding the matter, and supersedes and terminates any and all prior or contemporaneous negotiations, representations, understandings, discussions, offers, proposals, or agreements between the parties, whether written or oral, express or implied, relating in any way to the this matter, and is mutually binding on the parties in accordance with its terms.

D. No agent, representative, employee or officer of either the Court or the Contractor has the authority to make, or has made, any oral statement, agreement or representation, in connection with the Agreement, which in any way can be deemed to modify, add to and detract from, or otherwise change or alter its terms and conditions. No negotiations between the parties, nor any custom or usage, shall be permitted to modify or contradict any of the terms and conditions of the Agreement. No subsequent purchase order, invoice, click-through or shrink-wrap agreement, or similar document containing conflicting terms and conditions issued by Contractor in conjunction with the performance of any party's duties and/or obligations due under the Agreement, shall be permitted to modify or contradict any of the terms and conditions of the Agreement.

16. Force Majeure.

A. Force Majeure events include, but are not limited to:
(1) catastrophic acts of nature, or public enemy;
(2) civil disorder;
(3) fire or other casualty for which a party is not responsible; and
(4) quarantine or epidemic.

B. The party asserting a Force Majeure event will immediately provide Notice to the other party of the occurrence and nature of the Force Majeure event, and its expected impact on schedule. The party claiming Force Majeure will use commercially reasonable efforts to continue or resume performance, including alternate sources or means. Contractor will have no right to additional payment for costs incurred as a result of a Force Majeure event. Any assertion of a Force Majeure event by Subcontractors will be attributed to Contractor.

17. Indemnification.

A. To the fullest extent permitted by law, Contractor shall indemnify, hold harmless, and defend (with

counsel satisfactory to the JBE Office of the General Counsel), the Judicial Branch Entities and Judicial Branch Personnel from and against any and all claims, damages, losses, judgments, liabilities, expenses, and other costs (including court fees, litigation or settlement costs, attorneys' fees, and attorneys' fees incurred in enforcing this indemnification clause) arising or resulting from, or in connection with, Contractor's performance of, or failure to perform, Work or Contractor's other duties under the Agreement, or any breach of the Agreement by Contractor or its officers, employees, agents, representatives, or Subcontractors. Contractor's duties of indemnification exclude indemnifying a party for that portion of losses and expenses that are finally determined by a reviewing court to have arisen out of the sole negligence or willful misconduct of the indemnified party.

B. Contractor's obligation to defend, indemnify, and hold the Judicial Branch Entities and Judicial Branch Personnel harmless is not limited to, or restricted by, any requirement in the Agreement that Contractor procure and maintain insurance policies.

18. Infringement Protection. Contractor shall indemnify, defend (with counsel satisfactory to the Court), and hold the Judicial Branch Entities and Judicial Branch Personnel harmless from liability of any nature or kind, including costs and expenses, for any alleged or actual infringement or use of any copyrighted or un-copyrighted compositions, secret process, or patented or unpatented invention, article, or appliance furnished or used in connection with the Agreement.

19. Insurance Requirements. The Agreement shall specify whether the insurance requirements of Section 19.1 or Section 19.2 apply. Unless the Agreement calls for specific coverage(s) set forth on Section 19.2, the insurance requirements of Section 19.1 shall apply.

19.1 Insurance Requirements – General. Contractor shall maintain insurance that is sufficient in scope and amount to permit Contractor to pay in the ordinary course of business insurable claims, losses and expenses, including insurable claims, losses and expenses arising or resulting from, or in connection with Contractor's performance or breach of the Agreement, or be adequately self-insured for all risk, physical damage, and public liability. Contractor shall maintain employer's liability and workers' compensation coverage at California statutory levels covering all employees performing Work under the Agreement. Should the Court make such a request, Contractor shall provide to the Court certificates of insurance and/or complete copies of all insurance policies maintained by Contractor to meet the insurance requirements contained in this paragraph.

- OR -

19.2. Insurance Requirements – Specific Coverages.

A. Minimum Scope and Limits of Coverage. When required by the Agreement, Contractor shall maintain the following insurance coverages during the term of the Agreement.

(1) Workers' Compensation and Employer's Liability Insurance. This policy is required only if Contractor has employees. It must include workers' compensation to meet the minimum requirements of the California Labor Code, and it must provide coverage for employer's liability bodily injury at minimum limits of $1 million per accident or disease.

(2) Commercial General Liability Insurance. This policy must cover bodily injury, property damage, products (completed operations hazard and liability assumed in a contract), and personal and advertising injury, with minimum limits of $1 million for each occurrence, combined single limit, and $2 million aggregate.

(3) Business Automobile Liability Insurance. This policy is required only if Contractor uses an automobile or other vehicle in the performance of the Agreement. This policy must cover bodily injury and property damage liability and be applicable to all vehicles used in the Contractor's performance of the Agreement whether owned, non-owned, leased, or hired. The minimum liability limit must be $1 million per occurrence, combined single limit.

(4) Professional Liability. This policy must cover liability resulting from errors or omissions committed in Contractor's performance of Services under the Agreement, at minimum limits of $1 million per claim.

(5) Sexual Misconduct Insurance. This policy must cover bodily injury arising out of, resulting from, or in connection with the actual or threatened sexual abuse, molestation, or harassment of any person by Contractor's employees or any other person for whose acts Contractor may be held liable ("Contractor's Agents"), and the negligent employment, investigation, supervision, failure to report, or retention of Contractor's employees or Contractor's Agents for the actual or threatened sexual abuse, molestation, or harassment of any person. The minimum liability limit must be $1 million per occurrence.

(6) Commercial Crime Insurance. This policy must cover losses of Court Property arising or resulting from, or in connection with:

(a) The theft, robbery, burglary, disappearance, damage, or destruction of Court Property, including the cost of check reconstruction;
(b) Dishonest or fraudulent acts, including forgery, alteration, or the fraudulent transfer of Court Property;
(c) Losses or damage to any building, vehicle, safe, vault, or cash box within the control or possession of Contractor.

The minimum liability limit must be $1 million per occurrence.

(7) Umbrella Policies. Contractor may satisfy basic coverage limits through any combination of basic coverage and commercial umbrella liability insurance.

B. Insurance Requirements Applicable to Required Policies.

(1) Contractor shall maintain the minimum insurance set forth in this section with reputable insurer(s). All insurance policies shall be placed with insurers admitted in the State of California and having an A.M. Best rating of not less than A-.

(2) By requiring such minimum insurance, the Court will not be deemed or construed to have assessed the risks applicable to Contractor. Contractor shall assess its own risks and if it deems appropriate and/or prudent, maintain greater limits and/or broader coverage.

(3) For full coverage, each insurance policy shall be written on an "occurrence" form, except for professional liability insurance, which may be made on a "claims made" form. If coverage is approved and purchased on a "claims made" basis, Contractor warrants continuation of coverage, either through policy renewals or the purchase of an extended discovery period, for three (3) years, without lapse, from the date of termination or expiration of the Master Agreement and the Court's acceptance of all Work provided under the Agreement. The retroactive date or "prior acts inclusion date" of any "claims made" policy must be no later than the date that the Work commences under the Agreement.

(4) The basic coverage limits of liability may be subject to annual aggregate limits. If this is the case, the annual aggregate limits of liability must be at least two times the limits required for each policy, or the aggregate may equal the limits required but must apply separately to the Agreement.

(5) If Contractor is an association, partnership, or other joint business venture, the basic coverage may be provided by either of the following methods:
(a) *Separate.* Separate insurance policies issued for each individual entity, with each entity included as a named insured or as an additional insured; or
(b) *Joint.* Joint insurance program with the association, partnership, or other joint business venture included as a named insured.

(6) Deductibles and Self-Insured Retentions. The deductible and/or self-insured retentions shall not limit or apply to Contractor's liability to the Court and shall be the sole responsibility of Contractor. Contractor shall declare to the Court all deductibles and self-insured retentions that exceed $100,000 per occurrence. Any increases in deductibles or self-insured retentions that exceed $100,000 per occurrence are subject to the Court's approval.

(7) Endorsements; Additional Insureds. All required insurance policies will contain, or be endorsed to contain, the following provisions:

(a) Additional Insureds. The Superior Court of California, County of Riverside and its Personnel (including judges, officials, officers, employees, agents, and representatives) shall be covered as additional insureds for liability arising out of activities performed by, or on behalf of, Contractor under the Agreement.

(b) Primary Insurance; Waiver of Subrogation. Contractor's insurance coverage shall be primary and non-contributory with any insurance or risk management programs covering the Court or Court Personnel. Contractor and its insurance carrier waive any and all rights of subrogation against the Court and Court Personnel.

(c) Separation of Insureds. Contractor's insurance shall apply separately to each insured against whom a claim is made and/or lawsuit is brought, except with respect to the limits of the insurer's liability.

(d) Notice. All policies required of Contractor shall be endorsed to provide written notice to the Court of cancellation in coverage, non-renewal, or reduction of coverage within thirty (30) days, via one of the following methods:

- E-mail to riversidecourt@ebix.com (preferred method);
- Fax to (770) 325-2082;
- Mailing Address:
  Superior Court of California, County of Riverside
  Insurance Compliance
  PO Box 12010 - RV
  Hemet, CA 92546-8010

Please use only one of these methods. Duplicate submission may cause delay.

(8) Specific Wording for Certificate(s) of Insurance.

(a) The Certificate Holder name shall be: "The Superior Court of California, County of Riverside, and its Personnel (including judges, officials, officers, employees, agents)."

(b) Wording for the Additional Insured Endorsement shall be, in substance:

"The Superior Court of California, County of Riverside ("Court") and its Personnel are named as additional insureds on all above policies except workers' compensation."

"For each of the above policies, the coverage provided is primary and non-contributory with any insurance or risk management programs covering the Court or Court Personnel. Additionally, each of the above policies applies separately to each insured against whom a claim is made and/or a lawsuit is brought, to the limits of the insurer's liability. The insurer waives any and all rights of subrogation against the Court."

"The above policies shall not be canceled, non-renewed or reduced in scope of coverage until after 30 days written notice has been given by the insurer to the Court."

C. Failure to Maintain Insurance / Failure to Provide Certificate(s) of Insurance.

(1) If Contractor fails to maintain adequate insurance policies conforming to the above requirements, including the appropriate certificate holder/additional insured endorsements, primary/noncontributory and waiver of subrogation clauses, and amounts and extent of coverage, Contractor shall indemnify, defend (with counsel satisfactory to the Court), and hold harmless the Judicial Branch Entities and Judicial Branch Personnel from and be

responsible to the Judicial Branch Entities and Judicial Branch Personnel for all claims, damages, losses, judgments, liabilities, expenses, and other costs, including court fees, litigation or settlement costs, attorneys' fees (including attorneys' fees incurred in enforcing this indemnification clause), arising or resulting from, or in connection with Contractor's performance or breach of the Agreement, notwithstanding any clause or amounts limiting the Contractor's liability to the Court. Contractor's failure to maintain adequate insurance policies conforming to the above requirements may be considered a breach of the Agreement.

(2) Before Contractor begins Work, Contractor shall give the Court certificates of insurance attesting to the existence of adequate coverage. All certificates of insurance and replacement certificates of insurance are subject to the approval of the Court. Certificate(s) of insurance shall be submitted to the Court via one of the following methods:

- E-mail to riversidecourt@ebix.com (preferred method);
- Fax to (770) 325-2082;
- Mailing Address:
  Superior Court of California, County of Riverside
  Insurance Compliance
  PO Box 12010 - RV
  Hemet, CA 92546-8010

Please use only one of these methods. Duplicate submission may cause delay.

Submission of certificates of insurance (or lack thereof) and/or their approval by the Court shall not relieve the Contractor of its obligation to ensure that all required insurance policies conform to all foregoing requirements, and to ensure that any exclusions contained in such policies do not unduly or unfairly restrict the coverages required by the Court. Upon the Court's request at any time, Contractor shall provide: (1) complete copies of each required policy; and (2) the same evidence of insurance for its subcontractors as the Court requires of Contractor.

(3) If at any time, the foregoing policies become unsatisfactory to the Court, as to form or substance, or if a company issuing any such policy becomes unsatisfactory to the Court, Contractor shall, upon written notice from the Court, promptly obtain a new policy, and submit the same to the Court, with the appropriate certificates and endorsements.

(4) If any of the required policies lapses during the Term, the Court is not required to process invoices after such lapse until Contractor provides evidence of reinstatement that is effective as of the lapse date.

20. Limitation of Liability. The Court will not be liable to Contractor, its officers, employees, Subcontractors, or Third Parties for any indirect, special, or consequential damages, including lost profits or revenue, arising from or relating to the Agreement, regardless whether the Court was advised of the possibility of such loss or damage. In no event will the Court's liability for direct damages arising from or related to the Agreement, for any cause whatsoever, and regardless of the form of action, whether in contract or in tort, exceed the amounts paid to Contractor by the Court under the Agreement. Neither the Court nor Court Personnel will be personally responsible for liabilities arising under the Agreement.

21. Loss Leader. Contractor shall not sell or use any article or product as a "loss leader" as defined in section 17030 of the Business and Professions Code.

22. Modification. No modification or change to the Agreement, including any changes to Exhibit A (Statement of Work), shall be valid without the written approval of the Court, in the form of an Amendment.

23. Non-Exclusivity. The Agreement is non-exclusive. The Court reserves the right to perform, or have others perform the Work for the Agreement. The Court further reserves the right to bid the Work to others or procure the Work by other means.

24. Notices. Notices under the Agreement must be in writing. Notices may be delivered in person, via a reputable express carrier, or by registered or certified mail (postage pre-paid). Notice is effective on receipt; however, any correctly addressed notice that is refused, unclaimed, or undeliverable because of an act or omission of the party to be notified will be treated as effective on the first day that the notice was refused, unclaimed, or deemed undeliverable. Notices must be addressed to the other Party's Contract Representative as designated in the Standard Agreement Cover Sheet. Either party may change its address for receipt of notice by entering a different recipient and address below or by giving notice at any time to the other party in the manner permitted by this paragraph.

25. Prior Work. Prior work, performed by Contractor pursuant to the Court's authorization, but before execution of the Agreement, will be considered as having been performed subject to the provisions of the Agreement.

26. Prohibited Bids for End Product of the Agreement ("Follow-On Contracts").

A. If Contractor or its affiliates provides Consulting and Direction (as defined below), the Contractor and its affiliates: (i) shall not submit a bid or be awarded a subsequent contract to supply the service or system, or any significant component thereof, that is used for or in connection with any subject of such Consulting and Direction; and (ii) will not act as consultant to any person or entity that does receive a contract described in sub-section (i).

B. "Consulting and Direction" means services for which Contractor received compensation from the Court and includes: (i) development of or assistance in the development of work statements, specifications, solicitations, or feasibility studies; (ii) development or design of test requirements; (iii) evaluation of test data; (iv) direction of or evaluation of another contractor; (v) provision of formal recommendations regarding the acquisition of Information Technology products or services; or (vi) provisions of formal recommendations regarding any of the above. For purposes of this section, "affiliates" are employees, directors, partners, joint venture participants, parent corporations, subsidiaries, or any other entity controlled by, controlling, or under common control with Contractor. Control exists when an entity owns or directs more than fifty percent (50%) of the outstanding shares or securities representing the right to vote for the election of directors or other managing authority.

C. To the extent permissible by law, the Court may waive the restrictions set forth in this section by written notice to Contractor if the Court determines their application would not be in the Court's best interest. Except as prohibited by law, the restrictions of this section will not apply: (i) to follow-on advice given by vendors of commercial off-the-shelf products, including software and hardware, on the operation, integration, repair, or maintenance of such products after sale; (ii) to contractors that were awarded a subcontract of the original consulting service contract that amounted to no more than ten (10) percent of the total monetary value of the original consulting services contract; or (iii) where the Court has entered into a master agreement for software or services and the statement of work at the time of Agreement execution expressly calls for future recommendations among Contractor's own products.

D. The restrictions set forth in this section are in addition to conflict of interest restrictions imposed on public contractors by California law ("Conflict Laws"). In the event of any inconsistency, such Conflict Laws override the provisions of this section, even if enacted after execution of the Agreement.

27. Public Access to Records and Information.

A. Rule 10.500 of the California Rules of Court sets forth comprehensive access provisions applicable to administrative records (which includes, among other things, agreements and amendments) maintained by a trial court. The Court will make identifiable administrative records available upon request, unless the records are exempt from disclosure under Rule 10.500. Please be aware that an agreement or amendment may be considered a public record and be made available to anyone who requests a copy.

B. If an agreement or amendment contains material noted or marked by the Contractor as "Confidential" and/or "Proprietary" that, under Rule 10.500 would be exempt from public disclosure, then that information will presumptively not be made available to the public. If the Court considers that under Rule 10.500 such material is not exempt from public disclosure, the material may be made available to the public, regardless of the Contractor's notation or markings. If a Contactor is unsure if its confidential and/or proprietary material would fall within the disclosure exemption requirements of Rule 10.500, then

it should carefully consider whether to include such information in an agreement or amendment because such information may be disclosed to the public.

28. Public Contract Code. Part 2.5 of the California Public Contract Code (§§ 19201 – 19210), cited as the California Judicial Branch Contract Law, requires the Judicial Branch (including the Court) to comply with provisions in the Public Contract Code that apply to state agencies and departments regarding the procurement of goods and/or services. The California Judicial Branch Contract Law applies to all contracts initially entered into or amended by Judicial Branch entities (including the Court) on or after October 1, 2011.

29. Scope of Work; Acceptance; Rejection.

A. Scope of Work. Contractor will perform and complete all Work in compliance with the requirements of the Agreement, and to the satisfaction of the Court. Contractor shall strictly adhere to the delivery and completion schedules specified in the Statement of Work. Time, if stated as a number of days, shall mean calendar days unless otherwise specified.

B. Acceptance. Notwithstanding any prior inspection or payments, all Goods and Services delivered hereunder shall be subject to final inspection and acceptance or rejection by the Court within a reasonable time after delivery to the Court. Until Work is completed and accepted by the Court, the risk of loss or damage to the Work shall remain with Contractor. All items which are not in compliance with the specifications hereof, which are not as warranted or which are shipped late, shipped in excess or insufficient quantities, or substituted for items ordered hereunder may be rejected by the Court and returned or held at Contractor's expense and risk. No damages or extras will be allowed for unforeseen difficulties or obstructions. Payment shall not constitute an acceptance of the Goods, Services, or Work nor impair the Court's right to inspect or any of its remedies. Contractor shall immediately refund any payment made in error.

C. Rejection. The Court may reject any Goods, Services, or deliverables that: (i) fail to meet applicable requirements or acceptance criteria; (ii) are not as warranted; or (iii) are performed or delivered late. The Court's Project Manager may apply any acceptance criteria set forth in the Agreement (including timeliness, completeness, technical accuracy, and conformance to statistical, industry or marketplace standards) to determine acceptance or non-acceptance of the Work.

(1) If the Work is not acceptable, the Court's Project Manager shall detail Contractor's failure to meet the acceptance criteria. Contractor shall have ten (10) business days from receipt of the Court's notification of non-acceptance to correct the failure(s) to conform to the acceptance criteria. Contractor will re-submit the Work and the Court's Project Manager shall re-apply the acceptance criteria to determine its acceptance or non-acceptance. Thereafter, the parties shall repeat the process set forth in this section until Contractor's receipt of the Court's written acceptance of such corrected Work; provided, however, that if the Court rejects any Work on at least two (2) occasions, the Court may terminate that portion of the Agreement which relates to the rejected Work at no expense to the Court.

(2) If the Court rejects any Goods, Services, or other deliverables after payment to Contractor, the Court may exercise all contractual and other legal remedies, including: (i) setting off the overpayment against future invoices payable by the Court; (ii) setting off the overpayment against any other amount payable for the benefit of Contractor pursuant to the Agreement or otherwise; and (iii) requiring Contractor to refund the overpayment within thirty (30) days of the Court's request.

30. Shipping and Packing Slips. Time is of the essence to delivery and any other performance required of Contractor. No charge for delivery, drayage, express, parcel post, packing, cartage, insurance, license fees, permits, cost of bonds, or any other purpose shall be paid by the Court unless it is expressly included on the face of the Agreement. Unless stated otherwise, shipping point for all deliveries under the Agreement shall be FOB "destination", and on "FOB Shipping Point" transactions, Contractor shall arrange for lowest-cost transportation, prepay and add freight to its invoice, and furnish supporting freight bills over $25. If delivery is to be made by a carrier, an itemized delivery ticket must be attached to the outside of the package. Each container must be marked with the Agreement number, part number, and quantity. Any itemized packing slip bearing the Court's Agreement number as shown thereon must be left with the Goods to insure their receipt.

31. Standard of Performance; Warranties; Personnel Requirements; Background Checks.

A. Standard of Performance. Contractor will perform all Work with the requisite skill and diligence consistent with professional standards for the industry and type of work performed under the Agreement, and pursuant to the governing rules and regulations of the industry. Contractor acknowledges that the Court relies on the accuracy, competence, and completeness of Contractor's services.

B. Warranties.

(1) For a period of one (1) year, unless the Agreement or the warranties provided by a third party for Goods or Services procured by Contractor provide for a longer warranty period, Contractor expressly warrants that the Goods and Services covered by the Agreement are: 1) free of liens or encumbrances; (2) merchantable and good for the ordinary purposes for which they are used; and (3) fit for the particular purpose for which they are intended; (4) free from all defects in materials and workmanship; (5) to the extent not manufactured pursuant to detailed designs furnished by the Court, free from defects in design; and (6) conform to the requirements of the Agreement. The Court's approval of designs or specifications furnished by Contractor will not relieve Contractor of its obligations under this warranty.

(2) Contractor agrees to indemnify, defend, and hold the Court and Court Personnel harmless from liability, loss, damage and expense, including reasonable attorney's fees, incurred or sustained by the Court by reason for the failure of the Goods or Services to conform to such warranties, faulty work performance, negligent or unlawful acts, and non-compliance with any applicable state or federal codes, ordinances, orders, or statutes, including the Occupational Safety and Health Act (OSHA) and the California Industry Safety Act. Such remedies shall be in addition to any other remedies provided by law.

(3) Contractor represents and warrants to the Court that it owns, will own, is authorized, or will be authorized to use for its own and the Court's benefit, all intellectual property rights used and to be used in connection with providing and/or performing the Work.

(4) All warranties will inure to the Court, its successors, assigns, customer agencies, and users of the Work provided hereunder. Contractor shall not take any action, or fail to perform any act that results in a warranty or representation becoming untrue. Contractor shall promptly notify the Court if any warranty or representation becomes untrue.

(5) Unless otherwise specified, the warranties set forth in this Section commence after Work has been accepted by the Court.

C. Personnel Requirements.

(1) Contractor shall use adequate numbers of qualified individuals with sufficient training, education, experience, and skill to successfully perform the Work.

(2) If the Court is dissatisfied with any of Contractor's personnel for any reason, Contractor shall immediately replace them with qualified personnel upon receipt of the Court's Notice. Otherwise, Contractor shall endeavor to minimize turnover of personnel Contractor assigned to perform the Work under the Agreement. Contractor will be responsible for all costs associated with replacing personnel, including additional costs to familiarize replacement personnel with the Work. If Contractor does not promptly furnish replacement personnel acceptable to the Court, the Court may terminate the Agreement for cause.

D. Background Checks.

(1) The Court shall have the right, but not the obligation, to request or conduct backgrounds checks on any of Contractor's personnel, its subcontractors' personnel, or agents performing Work under the Agreement.

(2) Contractor shall cooperate with the Court if the Court decides to perform background checks by obtaining, at no additional cost, all releases, waivers, and permissions the Court requires. Contractor shall provide prompt Notice to the Court of: (i) any person refusing to undergo any such

background checks; and (ii) the results of any background checks as requested by the Court. Contractor may not assign to perform Work under the Agreement any personnel or any subcontractor's personnel who refuse to undergo a background check, and shall immediately remove such personnel from performing Work under the Agreement.

(3) The Court, in its sole discretion, shall determine whether Contractor's or its subcontractors' personnel or agents have passed the backgrounds checks required by the Court. No background information will be released to the Contractor or its subcontractors.

32. Stop Work.

A. The Court may, at any time, by delivery of a written Stop Work Order to Contractor, require Contractor to stop any or all of the Work, for ninety days after the Stop Work Order is delivered to Contractor, and for any further period to which the Parties may agree.

B. Upon receipt of the Stop Work Order, Contractor will immediately comply with its terms and take all reasonable steps to minimize the costs incurred to the Court during the applicable Stop Work period. Within ninety days after a Stop Work Order is delivered to Contractor, or within any mutually agreed extension of that period, the Court will either cancel the Stop Work Order or terminate the Work, as provided in the Termination provisions.

C. If a Stop Work Order is cancelled, or the period of the Stop Work Order or any extension thereof expires, Contractor will resume Work. The Court may make an equitable adjustment in the delivery schedule, the Agreement Amount, or both, if (i) the Stop Work Order increases Contractor's costs or the time required for performance; and (ii) Contractor asserts its right to an equitable adjustment within thirty days after the end of the applicable Stop Work period.

D. If a Stop Work Order is not canceled and the Work covered by the Stop Work Order is terminated other than for cause, the Court may allow reasonable costs resulting from the Stop Work Order.

E. The Court will not be liable to Contractor for loss of profits because of any Stop Work Order.

33. Survival. Terms that will survive termination or expiration of the Agreement include those relating to, but are not limited to: assignment, audit rights and retention of records, confidentiality, indemnification, limitation of liability, and warranties.

34. Termination.

A. Termination for Cause. The Court may terminate the Agreement, in whole or in part, for cause, upon thirty (30) days written notice. The Court shall be relieved of any payments, if Contractor fails to perform the requirements of the Agreement at the time and in the manner agreed. The Court may also cancel delivery immediately of all or any portion of unshipped goods or limit Contractor's Work and, proportionately, Contractor's compensation. The Court may proceed with the Work in any manner deemed proper. All costs to the Court arising from Contractor's default, including costs to complete or correct the Work, will be deducted from any sum due to Contractor. Contractor will not be entitled to recover overhead or profit on the uncompleted portions of the Work.

B. Termination for Convenience. The Court may terminate the Agreement, in whole or in part, at any time, for any or no reason, upon at least thirty (30) days written notice to Contractor. Upon receipt of notice of termination, Contractor will promptly discontinue Work as specified in the Notice. The Court will pay Contractor for the Work satisfactorily performed prior to the termination. Contractor will not recover overhead or profit on the uncompleted portions of the Work.

C. Termination due to Fund Non-Appropriation and/or Availability.

(1) The Court's obligations under the Agreement are subject to the availability of funds authorized for this Work. Expected or actual funding may be withdrawn, reduced, or limited prior to the expiration or other termination of the Agreement. Funding beyond the current Appropriation Year is conditioned upon appropriation of sufficient funds to support the activities described in the Agreement.

(2) Upon Notice, the Court may terminate the Agreement in whole or in part, without prejudice to any right or remedy of the Court, for lack of appropriation of funds. Upon termination, the Court will pay Contractor for the fair value of Work satisfactorily performed prior to the termination, not to exceed the total Agreement Amount.

D. Effect of Termination. Upon the Termination Date:

(1) The Court shall be released from compensating Contractor for Work, other than those Contractor satisfactorily performed before the Termination Date, and for any indirect costs. Without prejudice to the Court, Contractor shall be released from performing Work.

(2) If only a part of the Agreement is terminated by the Court such that Contractor is released from performing a portion of the Work, the Court shall accordingly be released from compensating Contractor for that portion of Work.

(3) Court will have the right to take possession of any materials, equipment, and other Work including partially completed Work. Contractor shall return to the Court any equipment purchased or built with Court funds, with costs incurred by Contractor being reimbursed by the Court. Unless otherwise provided in the Agreement, Contractor will immediately assign to the Court all of Contractor's right, title, and interest in and to such Work, related materials, work product, and any and all intellectual property rights.

(4) Upon termination of any kind, the Court may withhold from payment any sum that the Court determines to be owed to the Court by Contractor, or as necessary to protect the Court against loss due to outstanding liens or claims of former lien holders. Unless otherwise specifically provided, any advance payments made by the Court to Contractor shall be refunded to the Court on a pro rata basis.

35. Time is of the Essence. Time is of the essence in the performance of Work by Contractor under the Agreement.

36. Travel Rate Guidelines. Contractor's travel expenses are not reimbursable by the Court, unless the Agreement expressly indicates that the Court will reimburse such expenses. Unless otherwise specified in the Agreement, the Court's policies and limits on reimbursable travel-related expenses, consistent with the Administrative Office of the Courts' travel policies, are listed below. Dollar amounts stated in this section may be adjusted unilaterally by the Court from time to time. Contractor should contact the Court with any questions about the current dollar amounts. Contractor shall endeavor to use the most economical mode of travel whenever possible. Original receipts are required for each claimed item. When a receipt cannot be obtained, an explanation must be given, and proof of payment must be submitted. If requested by the Court, Contractor shall complete the Court's reimbursement claim forms as a condition of receiving any reimbursement from the Court. Contractor shall notify the Court of any anticipated travel prior to booking, which must be pre-approved by the Court.

A. Lodging. All lodging reimbursements require a valid receipt from a commercial lodging establishment that caters to the general public. Lodging will not be reimbursed without submission of a valid receipt. Each day of lodging claimed must be listed separately for the actual amount up to the maximum allowed below.
(1) In-state: Actual costs are reimbursable up to a maximum of $110 per day, plus tax and energy surcharge. When required to conduct official court business and obtain lodging in the counties of Alameda, San Francisco, San Mateo, and Santa Clara, the maximum rate allowed is $140, plus tax and energy surcharge.
(2) Out-of-state: Actual costs are reimbursable only with the Court's prior approval.
(3) Conference or convention lodging: Lodging reimbursement for conferences and conventions sponsored by the Court shall not be in excess of the in-state rate unless Contractor is staying at the conference site. Only the single occupancy rate may be claimed for reimbursement except when sharing a room with other Contractor personnel also traveling in performance of the Agreement.

B. Meals. If the cost of a meal is included in airfare, lodging, conference, or convention, no reimbursement shall be claimed for that meal. The Court will not reimburse for alcoholic beverages of any kind.

(1) For continuous travel of more than 24 hours, actual costs for breakfast, lunch, dinner, and incidentals for each 24 hour period are reimbursable up to the maximum rate (which includes tax and tip) as follows:
(a) Breakfast: Up to $6.
(b) Lunch: Up to $10.
(c) Dinner: Up to $18.
(d) Incidentals (e.g., tips for non-meal related expenses such as taxis): Up to $6.

(2) For continuous travel of less than 24 hours, actual costs up to the above maximum limits are reimbursable in accordance with the following conditions:
(a) Breakfast may be claimed only if travel begins one (1) hour before normal work hours.
(b) Dinner may be claimed only if travel ends one (1) hour after normal work hours.
(c) Neither lunch nor incidentals may be claimed for a trip of less than 24 hours.

C. Transportation. The actual and reasonable cost of tickets for air, rail, bus, rental car, or other forms of public transportation is reimbursable. The lowest cost ticket available must be purchased, and Contractor's "convenience" is not a valid justification for purchasing more expensive tickets. Receipts are required for rental cars and air travel. For ticketless travel, the traveler's itinerary may be submitted in lieu of a receipt.

(1) Airfare. All air travel arrangements should be made through the Court.
(2) Ground Transportation. The reasonable costs of cab fare, public parking, and tolls are reimbursable.
(3) Rental Vehicles. The Court's Purchasing Division and the State Department of General Services have contracted with several rental car agents for daily, weekly, and monthly rates for the lease of vehicle for Court business. Contractor must contact the Court prior to renting any vehicles. Insurance offered by the rental agent is not reimbursable, and all rental vehicles must be refueled prior to their return. Refueling charges at rental car rates are not reimbursable.
(4) Mileage. Personal vehicle mileage is reimbursable at the mileage reimbursement rate established by the IRS that corresponds to the date(s) of travel and in accordance with the Court's mileage reimbursement policy. The reimbursement rate includes all costs related to the operation and maintenance of the vehicle, including both liability and comprehensive insurance.

D. Business Expenses. Reimbursement is allowed for the reasonable costs of fax service, e-mail, telegrams, and business telephone calls. Telephone charges must be itemized by day with location, phone number, and person(s) called.

E. Cancellation of Travel or Missed Travel. Contractor shall be responsible for all expenses or charges incurred as a result of Contractor's cancellation of travel or Contractor's failure to make a scheduled travel, regardless of whether travel was booked by Contractor or the Court, unless the cancellation or failure to make such travel was due to an emergency as determined in the Court's sole discretion.

37. Waiver; Severability.

A. Waiver of Rights. The Court's action, inaction, or failure to enforce any right or provision of the Agreement is not a waiver of its rights, and will not prevent the Court from enforcing such rights on any future occasion. A Court-specific waiver does not constitute a waiver by the Court of any earlier, concurrent, or later breach or default.

B. Severability. The provisions of the Agreement are separate and severable. If any part of the Agreement is held invalid or unenforceable, all other parts remain valid or enforceable, unless prohibited by applicable state and federal law.

C. Waiver of Jury Trial. To the extent enforceable under California law, each party acknowledges that it is aware of and has had the opportunity to seek advice of counsel of its choice with respect to its rights to trial by jury, and each party, for itself and its successors and assigns, does hereby expressly and knowingly waive and release all such rights to trial by jury in any action, proceeding, or counterclaim brought by any party hereto against the other (and/or against its judges, subordinate judicial officers, officers, administrators, agents, representatives, and employees) on or with regard to any matters

whatsoever arising out of or in any way connected with the Agreement and/or any other claim of injury or damage.

38. Work Site. With respect to Work delivered and/or performed on the Court's premises, Contractor has the responsibility to inform itself fully and shall assume the risk as to the physical conditions at the worksite, including as applicable: (1) the availability, location, and extent of construction and storage areas and other facilities or structures above and below ground, but not limited to gas, water, sewer, electrical, and communication utilities; (2) necessary safety precautions and safeguards; (3) work to be performed by Contractor or others; (4) rules, regulations, and requirements to be observed by Contractor in the conduct of the Work. Lack of knowledge of existing conditions will not be accepted as an excuse for failure to perform the specified Work, nor shall such excuse be accepted as a basis for claims or additional compensation. Contractor shall conform to any specific safety requirements as required by law or regulation. Contractor shall take any additional precautions as the Court may reasonably require for safety and accident prevention purposes. Any violation of such rules and requirements, unless promptly corrected, shall be grounds for termination of the Agreement.

39. Miscellaneous Provisions Applicable to Specific Contracting Situations.

A. Agreements providing for Compensation of $50,000 or More; Union Activities Restrictions. As required under Government Code §§ 16645-16649, if the Agreement provides for total Compensation of $50,000 or more to Contractor, then the covenants in this subsection apply to Contractor's activities.

(1) Contractor shall not:
(a) Assist, promote, or deter union organizing by employees performing work under state or judicial branch contracts;
(b) Use the state's or the Court's funds received under the Agreement to assist, promote or deter union organizing; or
(c) For any business conducted under the Agreement, use any property of the state or the Court to hold meetings with employees or supervisors, if the purpose of such meetings is to assist, promote, or deter union organizing, unless the state or judicial branch property is equally available to the general public for holding meetings.

(2) If Contractor incurs costs, or makes expenditures to assist, promote, or deter union organizing, Contractor shall maintain records sufficient to show that no reimbursement from the state's and the Court's funds has been sought for these costs, and provide those records to the Attorney General upon request.

B. Provisions Applicable to Certain Services with Compensation Over $200,000. If this is an Agreement for services, other than consulting services, with total compensation over $200,000, Contractor shall give priority consideration in filling vacancies in positions funded by the Agreement to qualified recipients of aid under Welfare and Institutions Code § 11200 in accordance with Public Contract Code § 10353.

C. Provisions Applicable to DVBE Participation Certification. If Contractor made a commitment to achieve disabled veterans business enterprise participation, Contractor shall within 60 days of receiving final payment under the Agreement (or within such other time period as may be specified elsewhere in the Agreement) certify in a report to the Court: (1) the total amount the prime Contractor received under the Agreement; (2) the name and address of any disabled veterans business enterprises (DVBE) that participated in the performance of the Agreement; (3) the amount each DVBE received from the Contractor; (4) that all payments under the Agreement have been made to the DVBE; and (5) the actual percentage of DVBE participation that was achieved. A person or entity that knowingly provides false information shall be subject to a civil penalty for each violation.

D. Provisions Applicable to Court-Purchased or Court-Financed Equipment.

(1) If the Agreement provides Compensation to Contractor for a project funded through a grant, at the conclusion of the Project, title to all expendable and non-expendable personal property with a value of $500 or more purchased with Court funds shall vest, automatically and without further action of the parties, with the Court. If Contractor provides written certification to the Court that the property will continue to be used for grant-related purposes and the Court approves such certification in writing, the Court may permit title to all such property to remain with Contractor in accordance with the Court's written instructions. Contractor must await specific written instructions from the Project

Manager regarding any transfer of title or disposition.

(2) If Compensation under the Agreement is not through grant funding and the Agreement provides for the provision of equipment purchased or built with Court funds, title to any equipment purchased or built with Court funds shall vest in the Court immediately upon payment of the purchase price. Before delivery to the Court, Contractor is responsible for loss or damage to the equipment to the extent it results from the negligent act or omission of Contractor or its directors, officers, employees, or agents, and Contractor shall make all necessary or appropriate repairs and adjustments.

(3) Contractor shall maintain an inventory record for each piece of equipment purchased or built with Court funds provided under the Agreement, except for a piece of equipment that (i) has a normal life expectancy of less than one (1) year, or (ii) costs less than $5,000 and is not easy to steal. The inventory record must include the date acquired, total cost, serial number, model identification, and any other information or description necessary to identify the piece of equipment. Upon request by the Court, Contractor shall submit to the Court a copy of the inventory record.

(4) Upon the expiration of termination of the Agreement, or as otherwise directed by the Court, Contractor shall return such property to the Court in good condition, reasonable wear and tear expected, unless such property was not utilized, and in such case, shall be returned new and unopened from its original packaging.

E. Provisions Applicable to Competitively Bid Contracts; Antitrust Claims. If Work under the Agreement was obtained by means of a competitive bid, Contractor shall comply with the requirements of Government Code sections set out below.

(1) The Government Code chapter on antitrust claims contains the following definitions:

(a) "Public purchase" means a purchase by means of competitive bids of goods, services, or materials by the state or any of its political subdivisions or public agencies on whose behalf the Attorney General may bring an action pursuant to subdivision (c) of § 16750 of the Business and Professions Code.
(b) "Public purchasing body" means the state or the subdivision or agency making a public purchase. See Government Code § 4550.

(2) Contractor shall assign to the Court all rights, title, and interest in and to all causes of action it may have under § 4 of the Clayton Act (15 U.S.C. § 15) or under the Cartwright Act (Chapter 2, commencing with section 16700 of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, materials, or services by Contractor for sale to the Court pursuant to the bid. Such assignment shall be made and become effective at the time the Court tenders final payment to the Contractor. See Government Code § 4552.

(3) If the Court receives, either through judgment or settlement, a monetary recovery for a cause of action assigned under this chapter, the Contractor shall be entitled to receive reimbursement for actual legal costs incurred and may, upon demand, recover from the Court any portion of the recovery, including treble damages, attributable to overcharges that were paid by the Contractor but were not paid by the Court as part of the bid price, less the expenses incurred in obtaining that portion of the recovery. See Government Code § 4553.

(4) Upon demand in writing by the Contractor, the Court shall, within one year from such demand, reassign the cause of action assigned under this part if the Contractor has been or may have been injured by the violation of law for which the cause of action arose and (i) the Court has not been injured thereby, or (ii) the Court declines to file a court action for the cause of action. See Government Code § 4554.

F. Provisions Applicable to Federal or Federally-Assisted Contracts.

(1) Funding. If the Agreement is funded in whole or in part by the federal government, then:

(a) It is mutually understood between the parties that the Agreement may have been written for the mutual benefit of both parties before ascertaining the availability of congressional appropriation of funds, to avoid program and fiscal delays that would occur if the contract were executed after that determination was made.

(b) This contract is valid and enforceable only if sufficient funds are made available to the Court by

the United States Government for the fiscal year in which they are due and consistent with any stated programmatic purpose. In addition, the Agreement is subject to any additional restrictions, limitations, or conditions enacted by the Congress or to any statute enacted by the Congress that may affect the provisions, terms, or funding of this contract in any manner.

(c) The parties mutually agree that if the Congress does not appropriate sufficient funds for any program under which the Agreement is intended to be paid, the Agreement shall be deemed amended without any further action of the parties to reflect any reduction in funds.

G. Provisions Applicable to Federal or Federally Assisted Contracts; Prevailing Wages. This subsection applies only to federal and federally assisted contracts in excess of $2,000 for the construction, alteration, or repair (including painting and decorating) of public buildings or public works.

(1) Contractor shall comply with all requirements of the Davis Bacon Act and all Related Acts (40 USC 276(a); 29 CFR 1, 3, 5, 6 & 7) and all related state, county, city and local acts, rules and regulations mandated prevailing wage requirements (e.g. Labor Code §§ 1720-1861; California Code of Regulations, Title 8, §§ 16000-16403). These citations are provided as reference only and not to be interpreted as all-inclusive. Contractor is responsible for complying with all applicable federal, state and local prevailing wage requirements whether referenced or not.

(2) The David Bacon Act requires that all contractors and subcontractors performing on federal contracts (and contractor and subcontractors performing on federally assisted contracts under the related Acts) in excess of $2,000.00 pay their laborers and mechanics not less than the prevailing wage rates and fringe benefits (as determined by the Labor Department) for corresponding classes of laborers and mechanics employed on similar projects in the area. Prevailing Wage rates as determined by the Department of Industrial Relations for corresponding classes of laborers and mechanics employed on similar projects in the area are available on the website of the Department of Industrial Relations, Prevailing Wage Unit at www.dir.ca.gov/DLSR/PWD.

(3) Apprentices and trainees may be employed at less than predetermined rates. Apprentices must be employed to an apprenticeship program registered with the Department of Labor or with a state apprenticeship agency recognized by the Department. Trainees must be employed pursuant to a training program certified by the Department.

(4) Covered contractors and subcontractors are also required to pay employees weekly and to submit weekly certified payroll records to the contracting agency.

(5) Contractors and subcontractors on prime contracts in excess of $100,000 are also required, pursuant to the Contract Work Hours and Safety Standard Act, to pay employees one and one-half times their basic rates of pay for all hours over 40 worked on a covered contract work in a workweek.

H. Provisions Applicable to Consulting Services.

(1) If the Agreement provides for the payment of $1,000 or more for consulting services, Contractor must deliver detailed performance criteria, a schedule for performance, and progress reports to the Court to allow the Court to determine whether Contractor is on the right track and the project is on schedule, to provide communication of interim findings, and to afford opportunities for airing difficulties or special problems encountered so that remedies can be developed quickly.

(2) If the Agreement provides for the payment of $5,000 or more for consulting services, Contractor shall attach to the Agreement resumes of each Contractor participant who will exercise a major administrative role or major policy or consultative role. Contractor shall use reasonable efforts to make these participants available to perform Services during the term of the Agreement.

I. Provisions Applicable to Legal Services. If the Agreement provides for the performance of legal services, Contractor shall adhere to any legal cost and billing guidelines, legal budgets, and legal bill or law firm audits as may be required by the Court. If the Agreement does not provide for legal representation to low-income or middle-income persons in civil, criminal, or administrative matters, Contractor shall also adhere to any litigation plans or case phasing of activities as may be required by the Court. If the

Agreement does not provide for legal representation to low-income or middle-income persons in civil, criminal, or administrative matters, and also provides for Compensation (other than reimbursement of expenses) over $50,000, Contractor shall also comply with the requirements of Business and Professions Code § 6072, which concerns the performance of pro bono legal services.

(1) Under Business and Professions Code § 6072, Contractor agrees to make a good faith effort to provide a minimum number of hours of pro bono legal services during each year of the Agreement equal to the lesser of 30 multiplied by the number of full time attorneys in the firm's offices in California, with the number of hours prorated on an actual day basis for any contract period of less than a full year or 10 percent of the Agreement. Failure to make a good faith effort may be cause of non-renewal of the Agreement or another judicial branch or other state contract for legal services, and may be taken into account when determining the award of future contracts with the Court for legal services.

J. Provisions Applicable to Commercial Office Moving Services Agreements. If this is an agreement of more than $2,500 with a carrier for commercial office moving services, Contractor shall abide by the requirements contained in the State Administrative Manual, section 3810, which requires the Contractor to employ only drivers and supporting personnel who are under a current collective bargaining agreement or who are paid applicable prevailing wages and employed under prevailing standards and conditions of employment.

K. Provisions Applicable to Elevator Maintenance Agreements. If the Agreement provides for elevator maintenance, the Term of the Agreement shall be for a period of no less than five (5) years even if the Coversheet of the Agreement specifies a shorter term; however, the Agreement may be terminated during the Term in accordance with the Termination provisions contained herein.

L. Provisions Applicable to Janitorial Services or Building Maintenance Agreements. If the Agreement requires Contractor to perform Services at a new site, Contractor shall retain for 60 days all employees currently employed at that site by any previous contractor that performed the same services at the site. Contractor shall provide upon request information sufficient to identify employees providing janitorial or building maintenance services at each site and to make the necessary notifications required under Labor Code §§ 1060 et seq.

M. Provisions Applicable to Mined Mineral Agreements. If the Agreement involves the purchase of mined minerals, Contractor shall not supply through the Agreement any sand, gravel, aggregates, or other minerals a Court may not purchase under Public Contract Code § 10295.5.

N. Provisions Applicable to Rental Agreements. If the Agreement provides for the rental of personal property, the Court shall have no responsibility for loss or damage to the rented equipment arising from causes beyond the Court's control. The Court is responsible for repairs and liability for damage or loss only to the extent they become necessary and result from a negligent act or omission of the Court or any Court Personnel. If the Agreement provides for the rental of equipment or other personal property and the Court has not expressly elected through the Agreement to maintain the equipment or other personal property, Contractor shall keep the equipment in good working order and make all necessary or appropriate repairs and adjustments without qualification.

O. Provisions Regarding Material Safety Data Sheets. If some or all of the Goods provided by Contractor under the Agreement are on CAL OSHA's "Hazardous Substances List," Contractor shall forward a completed Material Safety Data Sheet (MSDS) to the Court.

P. Provisions Regarding Recycled Goods. Unless otherwise provided in the Agreement, pursuant to Public Contract Code § 12203(d), Contractor shall use or sell only recycled products under the Agreement to the maximum extent economically feasible, but only if the fitness and quality of such recycled products are equal to non-recycled products.

(1) If the Agreement provides for the purchase and sale of goods specified in Public Contract Code § 12207 (for example, certain paper products, office supplies, mulch, glass products, lubricating oils, plastic products, paint, antifreeze, tires and tire-derived products, and metal products), and the percentage of Contractor's postconsumer material in these goods cannot be verified by reference to a written advertisement, including, for example, a product label, a catalog, or a manufacturer or

vendor website:

(a) Contractor shall deliver a declaration to the Court specifying the minimum, if not exact, percentage of post-consumer material as defined in the Public Contract Code § 12200 in Goods offered or sold to the Court, regardless of whether the Goods meet the requirements of Public Contract Code § 12209.1;

(b) UNDER PENALTY OF PERJURY, the declaration shall be true and correct and will remain so until Contractor delivers any amendment of a the current declaration to the Court, in which case the current declaration as amended will be true and correct; and

(c) If Contractor sells under the Agreement any printer or duplication cartridges that comply with Public Contract Code § 12209, Contractor shall so specify in the declaration required under this section.

END OF STANDARD BUSINESS DEFINITIONS, TERMS AND CONDITIONS

EXHIBIT D

ADDITIONAL DEFINITIONS, TERMS AND CONDITIONS 2.0

SPECIFIC TO INFORMATION TECHNOLOGY (IT)

PART A: DEFINITIONS

PART B: TERMS AND CONDITIONS

1. Custom Hardware or Software Products
2. Enhancements; Upgrades; Losses
3. License; Title to Equipment
4. Liquidated Damages
5. Manuals and Printed Materials
6. Patents, Copyrights, and Trade Secrets
7. Patent, Copyright, and Trade Secret Indemnity
8. Return of Confidential Information
9. Rights in Data; Right to Copy or Modify
10. Rights in Work Product
11. Training; Technical Support
12. Warranties (IT)
13. Miscellaneous Provisions Applicable to Specific Contracting Situations.

PART A: DEFINITIONS

All definitions contained in Exhibit C (Standard Business Definitions, Terms and Conditions), are incorporated herein by reference.

1. **Cost to Cover**: The cost, properly mitigated, of procuring Goods or Services of equivalent capability, function, and performance.

2. **Custom Software** or **Custom Hardware Product**: Any hardware and/or software product specially designed, developed, and/or programmed by Contractor for use by the Court.

3. **Enhancement**: Includes any modifications, revisions, adjustments, or updates to hardware or software to correct inefficiencies or residual errors, to enhance functionality or operability, to customize user preferences, to promote compatibility among any systems of which the hardware or software is a part, and to effect any other minor changes.

4. **Equipment**: An all-inclusive term referring to the hardware and/or software to be provided under this Agreement or for which services are rendered under this Agreement.

5. **Hardware**: Usually refers to computer machines, electrical or mechanical devices, or parts thereof, and is contrasted with Software.

6. **Hardware Product**: Hardware furnished by Contractor as a distinct unit.

7. **IT**: Information technology, which includes, but is not limited to, all electronic technology systems and services, automated information handling, system design and analysis, conversion of data, computer programming, information storage and retrieval, telecommunications which include voice, video, and data communications, requisite system controls, simulation, electronic commerce, and all related interactions between people and machines.

8. **Software**: An all-inclusive term which refers to any computer programs, routines, or subroutines, including operating software, programming aids, application programs, and program products.

9. **Software Product**: Software furnished by Contractor as a distinct unit.

PART B: TERMS AND CONDITIONS

1. **Custom Hardware or Software Products.** Unless otherwise specifically provided in the Statement of Work, the Court shall be deemed to have accepted each Custom Hardware or Software Product (i) upon its issuance of written notice of such acceptance; or (ii) sixty (60) days after its installation date, unless at or before that time the Court gives Contractor written notice of rejection. No payment for Custom Hardware or Software Products will be due before acceptance thereof, except to the extent required by progress payment terms in the Court's Statement of Work. Any notice of rejection will explain how the Custom Hardware or Software Product fails to substantially conform to the functional and performance specifications of this Agreement. Contractor will, upon receipt of such notice, investigate the reported deficiency and exercise reasonable best efforts to remedy it promptly. The Court, in its sole discretion, will have the option to re-perform the acceptance test. If the Contractor is unable to remedy the deficiency within (60) days of notice of rejection, the Court shall have the option of accepting substitute Hardware or Software Products, or terminating for default the portion of the Agreement that relates to such Custom Hardware or Software Products, or terminating this Agreement in its entirety for default.

2. **Enhancements; Upgrades; Losses.**

   A. Enhancements. During the term of this Agreement, unless otherwise provided in the Agreement, as soon as any Enhancement applicable to any of the Goods or Services provided under this Agreement, is reasonably reduced to practice, such Enhancement shall be included as part of the license granted, and Contractor shall accordingly incorporate such Enhancement in the Goods or Services provided under this Agreement; provided that such Enhancement is compatible with the Court's existing hardware or software configuration as verified by Contractor and such Enhancement is approved by the Court prior to their incorporation. Such incorporation shall be performed by Contractor without additional charge to the Court.

   B. Upgrades. Unless otherwise provided in the Agreement, for any improved or upgraded versions of any Goods or Services under this Agreement that are developed by Contractor and are made available to other licensees, such versions will be made available to the Court at the Court's option, provided such versions are compatible with the Court's existing hardware or software configuration as verified by Contractor, at a price no greater than the difference between (i) the price established by the Contractor for the later version; and (ii) the prevailing price or the price specified under this Agreement, whichever is greater, of the version provided by Contractor under this Agreement.

   C. Losses. Contractor shall endeavor to ensure that there is no material loss of functionality and/or performance of the Goods or Services due to any Enhancements or Upgrades made by Contractor, and the Enhancements or Upgrades are incorporated in such a way as not to cause any material fault or malfunction in the Goods or Services. If there is any loss in functionality, performance, fault or malfunction, then at the Court's option and at no cost to the Court, Contractor shall roll back the Goods or Services to the state it was in before the Enhancement or Upgrade was incorporated.

3. **License; Title to Equipment.**

   A. Unless otherwise provided in the Statement of Work:

      (1) Contractor grants to the Court and the Court accepts from Contractor, subject to the terms and conditions of the Agreement, a royalty-free, non-exclusive, non-transferable, worldwide license to use the Goods and Services listed in the Statement of Work.

      (2) Contractor may own or hold a license to use and/or sublicense various hardware or software in existence prior to the start date of this Agreement ("Contractor's Materials"). Contractor's Materials may include designs, utilities, and all related materials, as well as programming, consulting, creative and marketing ideas, development tools, routines, sub-routines, algorithms, software, engines, source code, object code, and other programs, data and materials, and any modifications, enhancements, and derivative works thereto. Contractor may, at its option, include Contractor's Materials in the Work performed under this Agreement. If so, Contractor retains all right, title, and interest to all copyrights, patent rights, and trade secret rights in Contractor's Materials; provided that Contractor grants and the Court hereby accepts from Contractor, a royalty-free, non-exclusive, non-

transferable, worldwide license to use any of Contractor's Materials incorporated into the Work performed by Contractor under this Agreement.

B. The Court, and any division thereof, may use the Goods and Services in the conduct of its own business.

C. With respect to Software Products furnished by Contractor as listed in the Statement of Work, the license above authorizes the Court to use such Software Products in machine-readable form on any Court computer or computer system; provided however, that no more than the number of machine-readable copies of the Software Products if specified in the Statement of Work will be in existence at any one time without Contractor's prior written consent, not to be unreasonably withheld.

D. Title to all Custom Software and Custom Hardware furnished by Contractor shall pass to the Court upon the Court's acceptance of the same. Title to other Software or Hardware Product furnished by Contractor shall also pass to the Court upon the Court's acceptance of the same, unless the Statement of Work expressly provides that the Hardware or Goods are rented, leased, or licensed to the Court such that title thereto will remain with Contractor. Title to special features installed on a Hardware Product and for which only a single installation charge was paid shall pass to the Court at no additional charge, together with title to the Hardware Product on which it was installed.

4. Liquidated Damages.

A. In the event that Contractor fails to complete Work in accordance with the Statement of Work within the time parameters as specified therein, and fails to provide suitable substitutions of Work acceptable to the Court, the Parties agree that the delay will interfere with the proper implementation of the Court's operations or programs to the loss and damage of the Court. From the nature of the case, it may be impracticable and extremely difficult to fix the actual damages sustained in the event of any such delay. The Court and Contractor, therefore, presume that in the event of any such delay, the amount of damage which will be sustained from such delay and payable to the Court as liquidated damages and not as a penalty shall be $500 for each and every day's delay in excess of the allotted time parameters set forth in the Statement of Work. In the event Contractor fails to pay such liquidated damages, the Court may deduct the amount from any money payable to Contractor under this Agreement.

B. If Contractor is delayed by reason of force majeure events, change orders or stop orders, or additional Work requested by the Court, or delays directly caused by the Court, the time of Contractor's performance may be extended commensurately by written agreement by the Court's Project Manager, and Contractor shall be relieved of paying liquidated damages for the period of such extension.

C. Although the Court, at its option, may waive the payment of liquidated damages, nothing herein shall be construed as affording Contractor any additional time for performance. The Court shall notify Contractor in writing of any claim for liquidated damages pursuant to this section on or before the date the Court deducts such sums from money payable to Contractor.

5. Manuals and Printed Materials.

A. Contractor agrees to provide to the Court, at no charge, all nonproprietary or proprietary manuals and other printed materials, and updated versions thereof, which are necessary or useful to the Court in its use of the Goods or Services provided hereunder. If additional copies of such manuals or printed materials are requested by the Court, Contractor will provide such additional materials at prices not in excess of prices charged by Contractor to its best customers for similar materials.

B. If Contractor is unable to perform maintenance or the Court obtains Contractor's consent to perform its own maintenance on Equipment under this Agreement, then upon written notice by the Court, Contractor will provide adequate and reasonable assistance including relevant documentation to allow the Court to maintain the Equipment based on Contractor's methodology. Contractor agrees that the Court may reproduce such documentation for its own use in maintaining the Equipment. If Contractor is unable to perform maintenance, Contractor agrees to license any other contractor that the Court may hire to maintain the Equipment to use the above noted documentation. The Court shall not remove, alter, cover, or obliterate any copyright notices on any such documentation reproduced.

6. Patents, Copyrights, and Trade Secrets.

A. Contractor warrants that the Goods or Services, and any component thereof, furnished by Contractor under this Agreement shall not infringe upon the intellectual property rights of the Court or any third party. Contractor shall be solely responsible for clearing the right to use any patented or copyrighted materials in the performance of this Agreement.

B. Contractor further warrants that (i) any Hardware or Software Product as modified by Contractor under this Agreement will not infringe upon or violate any patent, proprietary right, or trade secret right of any third party; and (ii) Contractor has the appropriate systems and controls in place to ensure that Court funds will not be used to acquire, operate, maintain, or modify any Hardware or Software Product in violation of any U.S. intellectual property right or law.

7. Patent, Copyright, and Trade Secret Indemnity.

A. Contractor will indemnify, defend (with counsel satisfactory to the JBE Office of General Counsel), and save harmless the Court and Court Personnel, from any and all third party claims, damages, penalties, expenses, costs (including attorneys' fees), and losses arising or resulting from, or in connection with any alleged or actual infringement, misappropriation, or violation of any U.S. intellectual property right or proprietary right of any third party in any Goods or Services, or component thereof, furnished by Contractor in connection with this Agreement.

B. Should either party become aware of a legal action related to, or affecting, the Work furnished under this Agreement, that party shall notify the other party of the action, and the Court shall tender the defense thereof within a reasonable time. Contractor shall have control of the defense of any action on such claim and all negotiations for its settlement or compromise; provided that: (i) Contractor shall confer and cooperate with the Court in such defense; (ii) the Court, at its option, may participate in such action at its own expense with respect to attorneys' fees and costs (but not liability); and (iii) the Court will have the right to approve or disapprove any settlement or compromise, which approval will not unreasonably be withheld or delayed. Contractor may be required to furnish a bond to the Court against any and all loss, damage, costs, expenses, claims, and liability for any alleged or actual infringement, misappropriation, or violation of any U.S. intellectual property right or proprietary right of a third party.

C. With respect to claims arising from hardware or software manufactured by a third party and sold by Contractor as a reseller, Contractor will pass through to the Court such indemnity rights as it receives from such third party ("Third Party Obligation") and will cooperate in enforcing them; provided that if the third party manufacturer fails to honor the Third Party Obligation, Contractor will provide the Court with indemnity protection at least equal to that called for by the Third Party Obligation, or at the Court's option, the indemnity protection provided above in this Agreement.

D. Should any of the Goods or Services, or any component thereof, become, or in Contractor's opinion are likely to become, the subject of a claim of infringement or violation of a U.S. intellectual property right, Contractor shall provide written notice to the Court. The Court shall permit Contractor at its option and expense either to procure for the Court the right to continue using the Goods or Services, or to replace or modify the same so that they become non-infringing. If none of these options can reasonably be taken, or if the use of such Goods or Services by the Court shall be prevented by injunction, Contractor agrees to take back such Goods or Services and make every reasonable effort to assist the Court in procuring substitute Goods or Services. If, in the sole opinion of the Court, the return of such infringing Goods or Services makes the retention of other hardware or software acquired from Contractor impractical, the Court shall then have the option of terminating this Agreement, or applicable portions thereof, without penalty or termination charge. Contractor agrees to take back such Goods or Services and refund any sums the Court has paid Contractor less any reasonable amount for use or damage.

8. Return of Confidential Information. Upon cancellation, expiration, or termination of this Agreement, or at any other time upon the Court's request, Contractor shall promptly return to the Court any Confidential Information belonging to the Court remaining in Contractor's possession. Confidential Information shall be clearly marked and submitted separately, and not embedded in any of Contractor's Work Product. Contractor shall, at the Court's option, destroy all materials in Contractor's possession containing such Confidential Information.

9. Rights in Data; Right to Copy or Modify.

A. Rights in Data. All electronic files, input or output data, the media upon which such files and data are located (e.g., cards, tapes, discs, and other storage mediums), and all Software Products and packages (together with related documentation, source codes, object codes, upgrades, revisions, and modifications thereto), which are utilized, prepared, or developed for and paid for by the Court and delivered to the Court shall be property of the Court. Contractor may not distribute or otherwise disclose to third parties any data inputted or uploaded by the Court in its use of any Software or Hardware Product.

B. Right to Copy or Modify. Any Software Product provided by Contractor in machine-readable form may be copied, in whole or in part, in printed or machine-readable form for use by the Court to perform one-time benchmark tests, for archival or emergency restart purposes, to replace a worn copy, to understand the contents of such machine-readable material, or to modify the Software Product; provided, however, that no more than the number of printed copies and machine-readable copies as specified in the Agreement will be in existence at any one time without Contractor's prior written consent, not be unreasonably withheld. The Court may modify any non-personal computer Software Product, in machine-readable form, for its own use and merge it into other program material; provided that nothing in this subsection will be construed to contradict the terms of any separately applicable third party license agreement.

10. Rights in Work Product.

A. Unless otherwise provided in the Agreement, Contractor shall be deemed the sole author and patent and/or copyright owner of all inventions, discoveries, intellectual property, or technical communications originated or prepared solely by Contractor pursuant to this Agreement including papers, reports, charts, computer programs, and other documentation or improvements thereto (collectively, the "Work Product").

B. Software and other materials developed or otherwise obtained by or for Contractor or its affiliates independently of this Agreement ("Pre-Existing Materials") do not constitute Work Product. If Contractor creates derivative works of Pre-Existing Materials, the elements of such derivative works created pursuant to this Agreement constitute Work Product, but other elements do not. Nothing in this section will be construed to interfere with Contractor's or its affiliates' ownership of Pre-Existing Materials.

C. Contractor grants and the Court hereby accepts Government Purpose Rights to the Work Product as furnished to the Court hereunder. "Government Purpose Rights" are the unlimited, irrevocable, worldwide, perpetual, royalty-free, non-exclusive rights and licenses to use, modify, reproduce, perform, release, display, create derivative works from, and disclose the Work Product. "Government Purpose Rights" also include the right to release or disclose the Work Product outside the Court for any Court or government purpose and to authorize recipients to use, modify, reproduce, perform, release, display, create derivative works from, and disclose the Work Product for any Court or government purpose. Such recipients of the Work Product may include, without limitation, the Court's contractors, California state and local governments, the U.S. federal government, and the Court's Personnel. Government Purpose Rights do not include any rights to use, modify, reproduce, perform, release, display, create derivative works from, or disclose the Work Product for any commercial purpose.

D. All inventions, discoveries, intellectual property, technical communications, ideas, concepts, know-how, techniques relating to data processing, and records developed, originated, or prepared during the course of this Agreement jointly by Contractor and the Court may be used by either party without obligation of notice or accounting.

11. Training; Technical Support.

A. Training. Unless otherwise provided in the Agreement or in an implementation plan schedule agreed upon by the parties, Contractor shall provide technical and/or end user training (e.g., non-technical or functional) to enable Court Personnel to productively use the Goods or Services furnished under this Agreement. Contractor shall provide overview training prior to placing any Goods or Services into operational use and comprehensive user training upon installation and start-up in accordance with the Statement of Work or implementation plan schedule. All training shall be conducted by qualified Contractor personnel during regular business hours at Court locations or at mutually agreed-upon locations.

B. Technical Support. Unless otherwise provided in the Agreement, Contractor shall also maintain and provide for the Court's unlimited use, a live "Helpdesk" that is available online or by phone for immediate troubleshooting, training, and/or diagnostics on issues affecting the Goods or Services. If the issue requires an on-site technician for repair, the Helpdesk shall gather the necessary information to promptly dispatch a qualified technician who is equipped to train and/or customize the system to the Court's needs.

C. Unless otherwise provided in Exhibit B (Payment), all costs, including travel expenses, associated with the provision of such training or technical support are embedded in the total Agreement Amount.

12. Warranties (IT).

A. General Warranty. Contractor warrants that the Work furnished hereunder will (i) substantially conform to the requirements of this Agreement (including without limitation all descriptions, specifications, and drawings identified); and (ii) be free from material defects in materials and workmanship. Contractor further warrants that Work shall be performed in a professional manner, in accordance with the highest applicable professional standards, using qualified personnel having a level of skill and experience in the area commensurate with the requirements of the Statement of Work, and in accordance with industry standards.

B. Pass Through of Warranties. Where Contractor resells hardware or software it purchased from a third party, and such third party offers additional or more advantageous warranties than those set forth herein, Contractor will pass through any such warranties to the Court and will reasonably cooperate in enforcing them. Such warranty pass-through will be supplemental to, and not relieve Contractor from, Contractor's warranty obligations set forth in this Agreement.

C. Scope of Warranties.

(1) All warranties, including special warranties specified elsewhere herein, shall inure to the Court, its successors, assigns, customer agencies, court users, and governmental users of the Goods or Services.

(2) Unless otherwise specified in the Agreement, the warranties in this section begin upon acceptance of the Work and end one (1) year thereafter.

D. Special Warranty Provisions Relating to Software.

(1) In addition to the other warranties set forth herein, where the Agreement involves the furnishing of software (regardless of whether such software is installed on the Court's systems or accessible via an online interface), Contractor warrants that such software (i) is free of harmful code (e.g., viruses, worms) and will run without material interruption; (ii) will perform in accordance with its license and accompanying documentation; and (iii) will not cause any material fault, loss, or malfunction in the Court's existing systems. The Court's approval of designs or specifications furnished by Contractor shall not relieve the Contractor of its obligations under this warranty.

(2) Contractor warrants that Contractor will not cause any unplanned interruption in the operations of, or accessibility to, any software furnished under this Agreement or any portion thereof through any device, method, or means including, without limitation, the use of any virus, worm, "lockup," "time bomb," or "key lock" device or program, or other disabling code, which (i) has the potential or capability of causing any unplanned interruption in the operations of, or accessibility of any Goods or Services or any portion thereof; (ii) could alter, destroy, or inhibit use of any Goods or Services or any portion thereof; or (iii) which could block access to or prevent use of any Goods or Services or any portion thereof by the Court or its users (collectively, "Disabling Device(s)"). Contractor further represents and warrants that it has not purposely placed, nor is it aware of, any Disabling Device on any portion of the Goods or Services furnished to the Court under this Agreement, nor shall Contractor knowingly permit any subsequently delivered portion of the Goods or Services to contain any Disabling Device. Without limiting the foregoing, if the Court believes that harmful code may be present in any software delivered hereunder, Contractor will, upon the Court's request, provide a master copy of the software for comparison and correction.

E. Other Warranties.

(1) Contractor warrants that it has the full right and authority to grant all licenses, including perpetual licenses, set forth in this Agreement.

(2) Additional warranties by Contractor are specified in other provisions of this Agreement.

F. Remedies.

(1) Contractor shall indemnify, defend (with counsel satisfactory to the Court), and hold harmless the Court and Court Personnel from and against any and all claims, damages, losses, judgments, liabilities, expenses, and other costs, including court fees, litigation or settlement costs, and attorneys' fees, arising or resulting from or in connection with Contractor's breach of the warranties set forth in this Agreement.

(2) If, during the warranty period, the Court discovers that the Work performed by Contractor under this Agreement has not been performed in accordance with the warranties herein and notifies the Contractor in writing of such faulty Work, then at the Court's option: (i) Contractor shall, without cost to the Court, perform any services necessary to correct the fault therein, including the repair or replacement of any nonconforming Goods or Services; or (ii) Contractor shall refund all amounts paid by the Court for the nonconforming Goods or Services and pay to the Court any amounts necessary to equal the Court's Cost to Cover.

(3) The rights and remedies in the above warranty clauses are in addition to any other rights or remedies, provided in law, equity or under this Agreement.

13. Miscellaneous Provisions Applicable to Specific Contracting Situations.

A. IT Maintenance Agreements.

(1) Contractor shall keep Equipment in good operating condition and shall always be responsive to the maintenance requirements of the Court.

(2) Unless otherwise provided in the Agreement:

(a) Maintenance services shall include scheduled preventative maintenance and unscheduled, on-call remedial maintenance. Preventative maintenance shall be performed on a schedule which is mutually acceptable to the Court and Contractor, which is consistent with the Court's operating requirements, and which is based upon the specific needs of the Equipment as determined by the manufacturer of the Equipment. Remedial maintenance shall be commenced promptly after notification by the Court that the Equipment and/or software is inoperative or otherwise in need of maintenance.

(b) Maintenance parts shall be furnished by Contractor and shall be equivalent to new in performance when properly used. Replacement maintenance parts shall become property of the Court.

(c) Contractor shall not charge the Court for any travel expenses associated with the provision of maintenance services.

(d) Contractor shall grant a proportionate maintenance credit or a pro-rata refund of the Compensation paid under the Agreement on any Equipment that is inoperative for consecutive scheduled work periods totaling 24 hours from the time the Court notifies the Contractor the Equipment was inoperative or otherwise in need of maintenance, provided (i) the Equipment became inoperative or is in need of maintenance through no fault of the Court; and (ii) the breakdown was attributable to equipment failure.

(e) In the event the Equipment maintained under this Agreement is moved to another location within the County of Riverside, Contractor shall continue to maintain the Equipment at the new location

(s) at no additional cost to the Court, with the exception of additional mileage expenses, which the Court will reimburse at rates that are mutually acceptable to both Parties. The Court may request Contractor to dismantle, pack, and re-install the Equipment at the new location(s) at rates that are mutually acceptable to both Parties.

END OF INFORMATION TECHNOLOGY (IT) DEFINITIONS, TERMS AND CONDITIONS

SPECIAL TERMS AND CONDITIONS

FACILITES SMALL PROJECTS

1. **CONDUCT OF WORK**: As may be applicable, the Contractor shall maintain the work site and perform the work in a manner that meets all legal requirements for the provision of a safe workplace. The Contractor will ensure that all work is performed in a safe and satisfactory manner, and that all work conforms to all regulatory and industry standards. Upon completion of the work, Contractor shall remove all equipment and unused materials provided for the work, put the buildings and premises in a neat and clean condition, and do all other cleaning and washing as applicable. Further, the Contractor shall comply with safety standards and provisions of applicable laws, building codes, and safety regulations issued by the California Department of Industrial Relations. The Contractor shall be liable for damages arising out of injury to the Court's employees or its contractors during performance of the work, provided that the injury or damage was caused by the fault or negligence of the Contractor, or by its equipment or tools.

2. **LIENS**: Contractor shall discharge at once, and hold the Court harmless from, liens or stop notices that may be filed in connection with the work. The Court may withhold payment of funds from Contractor in an amount sufficient to discharge delinquent accounts of Contractor or any of Contractor's subcontractors for which liens on the Court's or County's property have been or can be filed or for which stop notices have been or can be filed. Contractor must furnish unconditional lien releases to the Court.

3. **BONDS:** The Court may require written evidence of Contractor's ability to obtain from a reputable bond company required bonds. If requested, the Contractor may be asked to supply a fidelity bond covering the dishonest acts of employees or a performance bond covering the completion of work. Bond limits and reimbursement of expenses shall be determined by the Court.

4. **INSPECTIONS**

   A. Materials Inspections

   Court may from time to time, at its sole good faith option, inspect and test certain materials or equipment. Therefore in contracting for the purchase of any material or equipment that Contractor will use in the performance of the Work, Contractor shall obtain for Court from the vendor of such material or equipment the right to inspect all such material and the manufacture and fabrication thereof. Whether or not Court conducts such inspection, Court shall also have the right to reject all materials or equipment that, in the sole good faith discretion of Court, fail to conform to either adequate manufacturing specifications, the specifications under which such materials or equipment were purchased or the specifications required for the performance of the Work.

   B. Field Inspections

   Throughout the performance of the Work, Court shall have the right to designate one or more inspectors or engineers to inspect and test the Work Site and the progress of the Work. Contractor shall cooperate with such inspectors and engineers in order that the Work may be fully inspected and that Court may at all times be fully advised of the progress of the Work and the manner in which it is being performed.

   C. Inspection Not Acceptance

   Contractor expressly understands and agrees that any inspection by Court pursuant to this Agreement shall be for Court's sole benefit and shall not be deemed an acceptance by Court of all or any portion of the materials or Work so inspected. Contractor further understands and agrees that no inspection by Court pursuant to this Agreement or approval or failure to object to any portion of the Work shall relieve or release Contractor from any duties, obligations, or liabilities provided in this Agreement.

5. **SCHEDULING WORK:** All work shall be scheduled with the Court Project Manager or their designee before starting the assigned project.

6. **SAFETY DEVICES:** Contractor shall furnish and maintain all safety devices, e.g., signs, barricades, cones, etc. required to adequately warn and protect all persons who will be utilizing this facility during the course of the work.

7. **CONTRACTOR-CAUSED DAMAGE(S):** The Contractor shall repair or replace, at the option of the Court's Project Manager(s), all damage to the building, equipment, or furniture caused by its operations within five (5) working days,

and preferable sooner.

8. GUIDELINES FOR CONTRACTOR CONDUCT: WORKING IN COURT BUILDINGS

These Guidelines for Contractor Conduct are subject to revision and may be modified by the Court at any time. Contractor will be notified of modifications.

A. Work areas are to be free of all tools, trash, material packaging, etc., and any other discarded items at the end of each shift. Contractors should take their trash with them at the end of each shift, rather than disposing of trash in court containers.

B. All waste, excess materials, tools, etc. shall be removed from the areas upon completion. The areas shall be thoroughly cleaned.

C. If desk items need to be moved, they must be placed back in the same location (including chairs moved to access under desk space).

D. Vacuum all areas paying special attention to all drywall cutouts and/or ceiling tile debris on floor and around work areas at the end of each shift.

E. Use caution when removing and installing ceiling tiles. Any damage resulting in mis-handled ceiling tiles will be the responsibility of the Contractor to replace.

F. Do not remove any furniture or chairs from any office area.

G. Do not prop open any secure doorways. Access cards will be furnished.

H. Do not modify the adjustments on any chairs, or remove any chairs from any area.

I. Do not use any Court radio, stereo, or TV. (Contractor's crew may furnish their own radio. However, volume must be kept at a low level, as judicial and administrative staff often work after hours).

J. Smoking is prohibited in all Court buildings, including any/all restrooms.

K. Do not use any restrooms in judicial chambers. Only use common area restrooms.

L. Do not leave company items behind once a job is complete (i.e. ladders and tools).

M. Any furniture moves necessary to complete the work must be indicated during the job walk or pre-project planning. No furniture is to be moved without prior notice to the Court Project Manager.

N. For security purposes, do not allow any person(s) into your work area, or into any other Court Building area. Do not open doors to allow person(s) access into your work area, or any other Court Building area. As you go through doors, be sure to securely pull them closed behind you. Don't let person(s) come through a door along with you.

O. These Guidelines for Contractor Conduct are not intended to replace any of the contract's terms and conditions. In regards to precedence, in case of any conflict between these Guidelines and any other portion of the contract, these Guidelines are inferior.

9. DRUG / ALCOHOL / FIREARMS / OPERATOR QUALIFICATION POLICY AND TESTING

A. Drug / Alcohol / Operator Qualification Program and Testing
Contractor represents and warrants that it has established, maintains, and enforces both a Drug and Alcohol Program and an Operator Qualification Program per industry standards.

B. Court Policy Regarding Drugs / Alcohol / Weapons

Contractor agrees to advise its employees and the employees of its subcontractors and agents that it is the policy of Court that:

1. The use, possession and/or distribution of illegal or unauthorized drugs, drug-related paraphernalia or weapons on Court's premises, right-of-way, or Job Site is prohibited and the use or possession of alcoholic beverages, except where authorized by Court's management, is also prohibited;

2. Entry onto or presence on Court's premises by any person, including Contractor, Contractor's employees, subcontractors, subcontractors' employees, contract personnel, temporary employees and visitors, constitutes consent to Court to conduct searches, whether announced or unannounced, on Court's premises of the person and his or her personal effects for such prohibited items, and consent to drug testing at any time while on Court's premises;

3. Any person suspected or found in violation of the policy or who refuses to permit a search or drug or alcohol test may be removed and barred from Court's premises, at the sole discretion of Court; and

4. Contractor personnel who test positive for illegal drugs or unauthorized alcohol as a result of a test conducted on Court premises, or upon request of Court, will be removed from any further performance or services under this Agreement.

CERTIFICATION RE: INSURANCE

Contractor must procure and maintain insurance coverageas indicated in the RFP documents, IFB documents, or other documents / information as posted on www.BidSync.com.

The PURCHASE ORDER TERMS AND CONDITIONS document and/or the MODEL CONTRACT document, included as part of this procurement on www.BidSync.com describe the Court's specific insurance requirements.

CONTRACTOR - Mark your one appropriate choice, below:

- Contractor **currently maintains and will continue to maintain**insurance that meets the requirements set forth in the Bid/RFP document, specifically in the Model Contract or the included Terms and Conditions.

  OR

- Contractor is **ready, willing and able** to maintain insurance that meets the requirements set forth in the Bid/RFP document, specifically in the Model Contract or the included Terms and Conditions.

  OR

- Contractor **takes exceptions** to the insurance requirements of this Bid/RFP andhas provided an explanation of these exceptions per the directions below.

BIDDER/PROPOSER

CERTIFICATION OF ACCEPTANCE

In response to the Bid/RFP, I/we the undersigned hereby declare that I/we have carefully read, examined and is fully familiar with the Bid/RFP documents and all other documents and information posted online at the Court Online Procurement Website (www.BidSync.com) and hereby propose to perform the Statement of Work and/or provide the goods/products as required in this solicitation. The undersigned hereby agrees that Court will not be responsible for any errors or omissions in these Bid/RFP Documents and Addenda.

The undersigned agrees to supply the services set forth and/or provide the goods/products in its submitted Bid/Proposal at the costs indicated within the time frame indicated if the Bid/Proposal is accepted. If recommended for Contract award, the undersigned agrees to execute a PO/Contract that will be prepared by Court for execution in timely fashion. The PO/Contract pursuant to this Bid/RFP may not be exclusive. Court expressly reserves the right to contract for performance of services and/or procurement of goods/products such as those described herein through other Proposers.

CONTRACTOR - Mark your one appropriate choice, below:

The undersigned certifies that he/she has:

€ (A) read, understands, and accepts all terms and conditions and affirms all certifications contained in the Bid/RFP Documents which will govern any PO/Contract awarded under this Bid/RFP, and that the undersigned's principal is fully bound and committed to the same;

OR

€ (B) read and understands all terms and conditions and all certifications contained in the Bid/RFP Documents which will govern any PO/Contract awarded under this Bid/RFP, but proposes certain exceptions. Such exceptions must be properly submitted in accordance with the Bid/RFP documents and directions. The undersigned acknowledges that any exceptions it takes may render a proposal non-responsive as determined in the Court's sole discretion, and that any terms, conditions, and certifications that it does not specifically identify as excepted to shall be deemed to be accepted and affirmed by Bidder/Proposer.

The undersigned certifies that he/she has the legal capacity to sign on behalf of the Bidder/ Proposer listed above, and that this signature is a legally binding signature upon the Bidder/Proposer.

(Type or Print Name)

(Email)

(Title)

(Name of Company)

Question and Answers for Bid #1305-013 - Building Automation System Replacement Services - Blythe Courthouse

OVERALL BID QUESTIONS

There are no questions associated with this bid. If you would like to submit a question, please click on the "Create New Question" button below.

Question Deadline: Jun 11, 2013 9:00:00 AM PDT