



FULTON COUNTY PURCHASING DEPARTMENT

Winner 2000 - 2004 Achievement of Excellence in Procurement Award
National Association of Purchasing Management

Jerome Noble, Director

August 19, 2005

RE: **#05ITB45467K-RS**
SW Arts Performance Theater

Dear Bidders:

Attached is one (1) copy of Addendum 3, hereby made a part of the above referenced Invitation to Bid (ITB).

Except as provided herein, all terms and conditions in the ITB referenced above remain unchanged and in full force and effect.

Sincerely,

Rholanda M. Stanberry

Rholanda Malveaux Stanberry
Chief Assistant Purchasing Agent

**#05ITB45467K-RS, SW Arts Performance Theatre
Addendum No. 3
August 19, 2005
Page Two**

This Addendum forms a part of the contract documents and **modifies** the original ITB documents as noted below:

ACKNOWLEDGEMENT OF ADDENDUM NO. 3

The undersigned bidder acknowledges receipt of this addendum by returning one (1) copy of this form with the proposal package to the Purchasing Department, Fulton County Public Safety Building, 130 Peachtree Street, Suite 1168, Atlanta, Georgia 30335 by the ITB due date and time **Wednesday, August 24, 2005 no later than 11:00 A.M.**

This is to acknowledge receipt of Addendum No. 3, _____ day of _____, 2005.

Legal Name of Bidder

Signature of Authorized Representative

Title

SW Arts Phase II
ITB No. 45467K-RS
Addendum 3
8/19/2005

1. Issue new Table of Contents to include new Sections 07 160 and 03 910 and to include Section 02 870, which was included in the bid documents but not listed in the table of contents, and to delete Section 15 869.
2. Issue revised Section 15 150.
3. Issue new Section 07 160 Fluid Applied Waterproofing, missing from Addendum No 1.
4. *Request for acceptance as approved vendor for terminal unit sections (15 858 and 15 869) by Johnson Controls, Inc.*
Section 15 858 does not apply to this project. Delete Section 15 869 Variable Volume Units, as this does not apply to this project. To Section 15 868 Fan Powered Induction Units, Part 1 – General, sub-paragraph 1.03 Acceptable Manufacturers, add Johnson Controls, Inc. as a Qualified Manufacturer.
5. *Item #28 from Addendum #1 does not fully clarify the question. The answer to the question references the geotechnical report, which shows rock. Since the report is showing rock, then rock is not unforeseen. Thus, please answer the following:*
 - A. *Should we include rock and unsuitable soil removal and replacement in our base bid?*
 - B. *If no, then please provide a clarification removing the notation in the specifications that the site is "unclassified".*
 - C. *If yes, then a quantity needs to be determined since the geotech report does not fully indicate an amount to be used.*Section 01027 Unit Prices states that for Unit Price 1, Rock Removal and Disposal and Unit Price 2, Unsuitable Soil Removal and Disposal that no cost is to be included in the base bid for these items. Paragraph 1.05 Unclassified Excavation addresses the excavation of materials necessary to achieve the grades indicated. If, during the excavation of these materials, rock or unsuitable soils should be encountered, then the unit pricing will be used to adjust the cost of grading. It does not relieve the Contractor of providing for the excavation of suitable soils, debris or other unclassified materials.
6. *Is the security system by the general contractor? Specification Section 16 721 calls for security system design and specification Section 16750 calls for raceway only. Please clarify.*
The security system is to be provided by the General Contractor as specified in Section 16 721 Security Alarm System. Delete the reference to security systems raceway in Part 1 General, paragraph 1.01 Description in Section 16 750 Telecommunication Conduit System, the raceway for the alarm system is called out under that section.
7. *Article 8.3.2 of the Owner-Contractor Agreement states an amount of "three hundred fourteen dollars (\$350.00) per calendar day". Please clarify.*
The amount of the liquidated damages is three hundred fourteen dollars (\$314.00) per calendar day.
8. *Drawing C1 indicates "Special Paved Display Areas Refer to Landscape Architects Drawings". The areas on the Landscape drawings indicate "Specialty Paving". The only "paving" detailed on the Landscape drawings is Grasspave 2. Is this the "specialty paving"? There are no other details or specifications. Please provide specification if otherwise.*
The areas indicted on drawing C1 as "Special Paved Display Areas" are to be a 2'x4' stamped concrete pattern laid out in a herringbone as indicated on the landscape drawings. The Grasspave 2 construction indicated on sheet L-1.1 is to be used in the

SW Arts Phase II
ITB No. 45467K-RS
Addendum 3
8/19/2005

amphitheater area and is identified by note on sheet L-1.0 to be a quantity of 11,000SF. See item 10 below for additional clarification on the exterior concrete work.

9. *There is a specification section 02 870 (not included in the Table of Contents) that specifies bench seating I was unable to locate on the Civil or Landscape drawings. Please provide quantity required.*
Add note to drawing L1.2 to identify bench symbols. See SK36 for bench quantity (3) and locations.
10. *There is no specification for the stained concrete or colors per the numbers on the landscape drawings. Please provide specification and colors.*
See attached specification Section 03 910 Cementitious Concrete Coatings for application of patterned colors to selected areas of the sidewalks. The colors are limited to the numbered areas indicated on SK36.
11. *There are no section details for the cantilever retaining wall shown on C13 (wall thickness or footing sizes). Please provide. Can modular wall units be used for this retaining wall?*
Yes. As noted on C1, the modular wall system manufacturer is to provide the design of the wall.
12. *Where are the air fresheners systems located that are specified in specification Section 10810?*
The air fresheners systems are located in the public restrooms, one per restroom area (total of 2). In the men's restroom it is located on the wall above the urinals and in the women's restroom it is located on the wall in the toilet area inside the first stall and as centered on the space as possible. The model number for the dispenser has been changed. The new model number is Technical Concepts model 401218 white with LCD display.
13. *What quantity of EAD's is to be provided? Where are the locations?*
There is one EAD (Emergency Aid Device) located in the lobby at the entry wall and adjacent to the concession counter. See sheet A2 for the location and detail 5/A27 for the elevation of the wall.
14. *Addendum No. 1 Item 5 says to add Specification Section 07160 Fluid Applied Membrane Waterproofing. This section was not included in the addendum. Please provide.*
See attached specification Section 07160 Fluid Applied Membrane.
15. *The specification section 00110 item 8 on page 4 requests submittal of corporate financial statements from the last two years 2001 and 2002. Should this be 2003 and 2004?*
Yes, submit corporate financial statements from the last two years 2003 and 2004.
16. *Request for acceptance as approved manufacturer and supplier for DDC controls by Control Concepts, Inc. (Staefa DDC system).*
Staefa is not an acceptable manufacturer for the DDC controls system for this project.
17. *The details on drawings A14 and A15 indicate that the metal roof (and insulation) is directly attached to the concrete deck at the upper roof. The specified manufacturers (Berridge and Peterson) for this project are not willing to provide a warranty for this type of attachment (testing for uplift, etc. at this type of attachment is unavailable). Typically, "Z" purlins are utilized for attachment in a concrete deck application. Please provide a clarification.*

SW Arts Phase II
ITB No. 45467K-RS
Addendum 3
8/19/2005

Provide "Z" purlins as recommended and in Section 07411 PREFORMED METAL ROOF PANELS, revise paragraph 2.04.A, Miscellaneous Sheet Metal Items, to add "Z" purlins. Add paragraph 2.04.E Ice and water shield acceptable manufacturers Johns Manville and W.R. Grace for ice and water shield indicated on the drawings.

Revise paragraph 3.02.B.1 to add "Z" purlin installation and add paragraph 3.02.B.3 to clarify installation of ice and water shield.

18. *The blind specifications call for blinds at all classrooms, art education classroom, special education classroom and band instruction. Please clarify where blinds are located.*
Revise specification Section 12492 Venetian Blinds, paragraph 3.05 SCHEDULE to omit subparagraphs 1 through 4 inclusive and add subparagraphs 1 through 4 as follows:
1. Office 121; 2. Office 123; 3. Green Room 139; and Office 148.
19. *Specification section 12496 calls for shades. Please clarify where the shades are located.*
Revise specification Section 12 496 WINDOW SHADE SYSTEMS, paragraph 3.05 SCHEDULE to omit subparagraphs 1 and add subparagraph 1 as follows:
1. Gallery 103
20. *The ceramic tile specification calls for two different thinset floor installations and two different thickset floor installations. Please clarify which are thinset and which get waterproofing. (Rooms 131 and 134 with showers clearly show thickset with waterproofing. What happens in small toilets 120, 137, and 147? What happens in the large restrooms?)*
Revise specification section 09301 CERAMIC TILE to omit all Tile Council of America (TCA) floor installations without membrane waterproofing (Types F112 and F113). Provide installation type F121 (thickset w/membrane) at spaces Toilet 131, Toilet 134, Men 106 and Women 104. Provide associated slab depression of 2" at these same spaces. Provide installation type F122 (thinset w/membrane) at Toilet 120, Toilet 137 and Toilet 147.
21. *Daltile does not offer a coved base trim in the specified color D469 Galaxy. Please clarify what to use.*
At spaces Toilet 120 and Toilet 131 delete cove base tile D469 Galaxy. The cove base in these spaces will be D335 as specified and in a continuous color, not patterned.
22. Revise the Hardware Schedule to clarify exit devices at aluminum and glass doors. Delete Von Duprin Series 98 at Heading Number 1 doors 001; 004; 005; 006; 009; Heading Number 2 doors 002; 003 and Heading Number 13 doors 036; 037; 052; 063; 064 and add Von Duprin series 35 to Heading Number 1 doors 001; 004; 005; 006; 009; Heading Number 2 doors 002; 003 and Heading Number 13 doors 036; 037; 052; 063; 064. Reconcile pull model number with center to center spacing: Heading Number 3 – delete pulls 118-18"CtoC and push 132-32"CtoC; add push/pull set 11247-1x32"CtoC; Heading Number 4 – delete push 132-32"CtoC; add RM350-32"CtoC; Heading number 5 – delete push 132-32"CtoC; add RM350-32"CtoC; Heading Number 7 – delete pulls 132-32"CtoC; add RM350 36"CtoC; Heading Number 8 - delete pulls 132-32"CtoC; add RM350 36"CtoC. All finishes to remain the same.
23. *Request for acceptance as approved manufacturer and supplier for Theatre Seating by Solid Solutions (Royal Seating Conventional Chair).*
Royal Seating Conventional Chair is not an acceptable alternate for the theatre seating for this project.

SW Arts Phase II
ITB No. 45467K-RS
Addendum 3
8/19/2005

24. *Request for acceptance as approved manufacturer and supplier for Theatre Seating by GSE (Irwin Seating).*
Irwin Seating is an acceptable alternate for the theatre seating for this project.
25. Issue revised specification Sections 01 030 Alternates and 00 300 Bid Form to include alternate Theatre Seating by Irwin Seating.
26. Revise Sheet M0 to include Carel as an acceptable manufacturer for the steam humidifier.
27. Revise specification Section 07 412 Metal Roof Panels, paragraph 2.01.A. to add McElroy Metals as an acceptable roof panel manufacturer.

End of Addendum 3

TABLE OF CONTENTS

BID MANUAL (Volume 1 of 2)

DIVISION 0 CONTRACTING & PROCUREMENT REQUIREMENTS

00 020	INVITATION TO BID
00 100	INSTRUCTIONS TO BIDDERS
00 110	BID SUBMITTAL FORMAT & CONTENT
00 125	FULTON COUNTY PURCHASING DEPARTMENT BID GENERAL REQUIREMENTS FORM A - NON-COLLUSION AFFIDAVIT OF PRIME BIDDER/OFFEROR FORM B - NON-COLLUSION AFFIDAVIT OF SUBCONTRACTOR FORM C - CERTIFICATE OF ACCEPTANCE OF REQUEST FOR BID/PROPOSAL REQUIREMENTS FORM E - CERTIFICATION REGARDING DEBARMENT FORM F - CORPORATE CERTIFICATE
00 150	BIDDING SCHEDULE
00 246	COMMUNITY WORKFORCE PROGRAM
00 300	BID FORM
00 301	BID BREAKDOWN FORM
00 430	NON-DISCRIMINATION IN CONTRACTING AND PROCUREMENT EXHIBIT A – PROMISE OF NON-DISCRIMINATION EXHIBIT B – EMPLOYMENT RECORD EXHIBIT C – SCHEDULE OF INTENDED SUBCONTRACTOR UTILIZATION EXHIBIT D – LETTER OF INTENT TO PERFORM AS A SUBCONTRACTOR OR PROVIDE MATERIALS OR SERVICES EXHIBIT E – DECLARATION REGARDING SUBCONTRACTING PRACTICES EXHIBIT F – JOINT VENTURE DISCLOSURE AFFIDAVIT EXHIBIT G – PRIME CONTRACTOR/SUBCONTRACTOR UTILIZATION REPORT EQUAL BUSINESS OPPORTUNITY PLAN (EBO PLAN)
00 440	OCIP INSURANCE INFORMATION EXHIBIT H – INSURANCE INFORMATION FORM - CONTRACTOR & SUBCONTRACTOR AGREEMENT

PROJECT MANUAL (Volume 2 of 2)

DIVISION 0 CONTRACTING & PROCUREMENT REQUIREMENTS

00 500	OWNER – CONTRACTOR AGREEMENT Article 1 Contract Documents Article 2 Administration Article 3 County Article 4 Contractor Article 5 Subcontractors Article 6 Work By County or By Separate Contractors
--------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Article 7 Miscellaneous Provisions
Article 8 Time
Article 9 Payments and Completion
Article 10 Safety
Article 11 Insurance
Article 12 Changes in the Work
Article 13 Uncovering and Correction of Work
Article 14 Termination of the Contract
Article 15 Non-Discrimination in Contracting & Procurement
Article 16 Full Performance Representation
00 610 BID BOND
00 620 PERFORMANCE & PAYMENT BONDS
00 850 LIST OF DRAWINGS

TECHNICAL SPECIFICATIONS DIVISION 01 – DIVISION 17

DIVISION 1 GENERAL REQUIREMENTS

01 010 SUMMARY OF WORK
01 020 ALLOWANCES
01 025 APPLICATIONS FOR PAYMENT
01 027 UNIT PRICES
01 030 BID ALTERNATES
01 040 PROJECT COORDINATION
01 045 CUTTING, CORING & PATCHING
01 050 LAYOUT OF THE WORK
01 090 REFERENCE STANDARDS
01 200 PROJECT MEETINGS
01 310 SCHEDULING OF THE WORK
01 320 REPORTS
01 340 SHOP DRAWINGS, PRODUCT DATA & SAMPLES
01 370 SCHEDULE OF VALUES
01 400 QUALITY CONTROL
01 500 CONSTRUCTION FACILITIES & TEMPORARY CONTROLS
01 560 ENVIRONMENTAL PROTECTION
01 610 MATERIAL & EQUIPMENT HANDLING
01 630 PRODUCTS & SUBSTITUTIONS
01 680 EQUIPMENT & SYSTEMS INSTRUCTION
01 700 PROJECT CLOSEOUT
01 710 FINAL CLEANING
01 720 PROJECT RECORD DOCUMENTS
01 730 OPERATING & MAINTENANCE DATA
01 740 WARRANTIES
01 750 BUILDING COMMISSIONING REQUIREMENTS
01 760 SPARE PARTS & MAINTENANCE MATERIALS
01 800 SAFETY, HEALTH & LOSS PREVENTION PROGRAM GUIDELINES
01 910 GEOTECHNICAL REPORT

DIVISION 2 SITEWORK

02 100	TEMPORARY SEDIMENTATION & EROSION CONTROL
02 105	DEMOLITION
02 110	SITE CLEARING
02 200	EARTHWORK
02 210	TRENCHING AND BACKFILLING
02 250	FINISH GRADING
02 361	SOIL TREATMENT FOR TERMITE CONTROL
02 480	PERMANENT GROUND COVER
02 610	ASPHALT PAVING
02 710	FENCING
02 719	WATER SERVICE PIPING
02 720	SEWER COLLECTION SYSTEM
02 810	IRRIGATION SYSTEM
02 870	SITE FURNITURE

DIVISION 3 CONCRETE

03 100	CONCRETE FORMWORK
03 200	CONCRETE REINFORCEMENT
03 300	CAST-IN-PLACE CONCRETE
03 311	PORTLAND CEMENT CONCRETE PAVING
03 350	CONCRETE FINISHES
03 910	CEMENTITIOUS CONCRETE COATINGS

DIVISION 4 MASONRY

04 065	MORTAR AND MASONRY GROUT
04 110	CEMENT GROUT FOR REINFORCED MASONRY
04 210	BRICK MASONRY
04 220	CONCRETE MASONRY UNITS
04 230	REINFORCED MASONRY

DIVISION 5 METALS

05 120	STRUCTURAL STEEL
05 210	OPEN WEB JOISTS AND JOIST GIRDERS
05 300	STEEL DECKING
05 400	COLD FORMED METAL FRAMING
05 500	METAL FABRICATIONS
05 586	METAL COLUMN COVERS

DIVISION 6 WOOD AND PLASTICS

06 100	ROUGH CARPENTRY
06 400	ARCHITECTURAL WOODWORK

DIVISION 7 MOISTURE PROTECTION

07 115	BITUMINOUS DAMPPROOFING
07 160	FLUID APPLIED WATERPROOFING
07 212	BOARD AND BATT INSULATION
07 260	VAPOR RETARDERS
07 411	PREFORMED METAL ROOF PANELS
07 614	METAL CANOPIES
07 620	SHEET METAL FLASHING AND TRIM
07 631	GUTTERS AND DOWNSPOUTS
07 724	ROOF HATCHES AND VENTS
07 840	FIRESTOPPING
07 900	JOINT SEALERS

DIVISION 8 DOORS AND WINDOWS

08 110	STEEL DOORS AND FRAMES
08 211	WOOD DOORS
08 331	OVERHEAD COILING DOORS
08 412	ALUMINUM STOREFRONT
08 710	DOOR HARDWARE
08 800	GLAZING

DIVISION 9 FINISHES

09 260	GYPSUM BOARD ASSEMBLIES
09 301	CERAMIC TILE
09 511	SUSPENDED ACOUSTICAL CEILINGS
09 643	HARDWOOD FLOORING
09 650	RESILIENT FLOORING
09 651	LINOLEUM FLOORING
09 681	CARPET
09 720	WALL COVERING
09 851	FABRIC COVERED ACOUSTICAL PANELS
09 900	PAINTING

DIVISION 10 SPECIALTIES

10 175	PHENOLIC CORE PARTITIONS
10 523	FIRE EXTINGUISHERS, CABINETS AND ACCESSORIES
10 525	EMERGENCY AID DEVICES
10 810	TOILET ACCESSORIES

DIVISION 11 EQUIPMENT

11 064	STAGE RIGGING AND DRAPERY
11 130	AUDIOVISUAL SYSTEMS
11 131	PROJECTION SCREENS
11 165	DOCK BUMPERS
11 452	RESIDENTIAL EQUIPMENT
11 710	PAINT BOOTH INSTALLATION

DIVISION 12 FURNISHINGS

12 200	THEATRE SEATING
12 486	FLOOR MATS
12 492	HORIZONTAL LOUVER BLINDS
12 496	WINDOW SHADE SYSTEM

DIVISION 13 SPECIAL CONSTRUCTION

(NOT USED)

DIVISION 14 CONVEYING SYSTEMS

(NOT USED)

DIVISION 15 MECHANICAL

15 010	MECHANICAL GENERAL
15 020	DUCTWORK & ACCESSORIES
15 030	LOUVERS, GRILLES, REGISTERS AND DIFFUSERS
15 035	PUMPS
15 040	UNITARY EXHAUST AND SUPPLY FANS AND VENTILATORS
15 051	NOISE AND VIBRATION CONTROL
15 052	PIPING & ACCESSORIES
15 117	PACKAGED AIR-COOLED CHILLER
15 150	AUTOMATIC CONTROLS
15 170	HVAC INSULATION
15 190	BALANCING & ADJUSTING
15 200	WATER TREATMENT
15 210	WATER SPECIALTIES
15 400	PLUMBING SYSTEMS
15 500	FIRE PROTECTION SYSTEMS
15 525	ELECTRIC FIRE PUMP AND ACCESSORIES
15 606	ELECTRIC UNIT HEATERS
15 867	MODULAR CENTRAL STATION AIR HANDLING UNITS
15 868	FAN POWERED INDUCTION UNITS
15 869	VARIABLE VOLUME UNITS
15 901	ADJUSTABLE FREQUENCY DRIVES (2 TO 400 HP)
15 995	MECHANICAL COMMISSIONING REQUIREMENTS

DIVISION 16 ELECTRICAL

16 100	GENERAL PROVISIONS
16 110	CONDUIT AND RACEWAYS
16 120	CONDUCTORS
16 130	OUTLET BOXES AND JUNCTION BOXES
16 140	WIRING DEVICES
16 160	PANELBOARDS
16 165	MAIN DISTRIBUTION PANELBOARDS
16 170	DISCONNECT SWITCHES
16 200	SWITCHBOARDS
16 450	GROUNDING
16 460	DRY-TYPE TRANSFORMERS
16 500	LIGHTING
16 580	PERFORMANCE LIGHTING SYSTEMS
16 700	FIRE ALARM SYSTEM
16 721	SECURITY ALARM SYSTEM
16 750	TELECOMMUNICATION CONDUIT SYSTEM
16 995	ELECTRICAL COMMISSIONING REQUIREMENTS

END OF TABLE OF CONTENTS

SECTION 15150

AUTOMATIC CONTROLS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. All work of this Division shall be coordinated and provided by the single Facilities Management System (FMS) Contractor.
- B. The work of this Division shall be scheduled, coordinated, and interfaced with the associated work of other trades. Reference the Specifications Documents for details.
- C. The work of this Division shall be as required by the Specifications, Point Schedules and Drawings.
- D. If the FMS Contractor believes there are conflicts or missing information in the project documents, the Contractor shall promptly request clarification and instruction from the design team.

1.02 DEFINITIONS

- A. Analog: A continuously variable system or value not having discrete levels. Typically exists within a defined range of limiting values.
- B. Binary: A two-state system where an "ON" condition is represented by one discrete signal level and an "OFF" condition is represented by a second discrete signal level each separated by a defined deadband.
- C. Facility Management System (FMS): The total integrated system of fully operational and functional elements, including equipment, software, programming, and associated materials, to be provided by this Division FMS Contractor and to be interfaced to the associated work of other related trades.
- D. FMS Contractor: The single Contractor to provide the work of this Division. This Contractor shall be the primary manufacturer, installer, commissioner and ongoing service provider for the FMS work.
- E. Control Sequence: An FMS pre-programmed arrangement of software algorithms, logical computation, target values and limits as required to attain the defined operational control objectives.
- F. Direct Digital Control: The digital algorithms and pre-defined arrangements included in the FMS software to provide direct closed-loop control for the designated equipment and controlled variables. Inclusive of Proportional, Derivative and Integral control algorithms together with target values, limits, logical functions, arithmetic functions, constant values, timing considerations and the like.

Construction of the SW Arts Performance Theater

- G. FMS Network: The total digital on-line real-time interconnected configuration of FMS digital processing units, workstations, panels, sub-panels, controllers, devices and associated elements individually known as network nodes. May exist as one or more fully interfaced and integrated sub-networks, LAN, WAN or the like.
- H. Node: A digitally programmable entity existing on the FMS network.
- I. FMS Integration: The complete functional and operational interconnection and interfacing of all FMS work elements and nodes in compliance with all applicable codes, standards and ordinances so as to provide a single coherent FMS as required by this Division.
- J. Provide: The term "Provide" and its derivatives when used in this Division shall mean to furnish, install in place, connect, calibrate, test, commission, warrant, document and supply the associated required services ready for operation.
- K. PC: IBM-compatible Personal Computer from a recognized major manufacturer. PC "clones" are not acceptable.
- L. Furnish: The term "Furnish" and its derivatives when used in this Division shall mean supply at the FMS Contractor's cost to the designated third party trade contractor for installation. FMS Contractor shall connect furnished items to the FMS, calibrate, test, commission, warrant and document.
- M. Wiring: The term "Wiring" and its derivatives when used in this Division shall mean provide the FMS wiring and terminations.
- N. Install: The term "Install" and its derivatives when used in this Division shall mean receive at the jobsite and mount.
- O. Protocol: The term "protocol" and its derivatives when used in this Division shall mean a defined set of rules and standards governing the on-line exchange of data between FMS network nodes.
- P. Software: The term "software" and its derivatives when used in this Division shall mean all of programmed digital processor software, preprogrammed firmware and project specific digital process programming and database entries and definitions as generally understood in the FMS industry for real-time, on-line, integrated FMS configurations.
- Q. The use of words in the singular in these Division documents shall not be considered as limiting when other indications in these documents denote that more than one such item is being referenced.
- R. Headings, paragraph numbers, titles, shading, bolding, underscores, clouds and other symbolic interpretation aids included in the Division documents are for general information only and are to assist in the reading and interpretation of these Documents. They do not form a formal part of the Documents and may not be consistent or complete in their use throughout the Documents.

1.03 CONTRACTOR QUALIFICATIONS

- A. Qualified Bidders: Johnson Metasys, Staefa, and ALC.

**Construction of the
SW Arts Performance Theater**

1.04 FMS DESCRIPTION

- A. The work of the single FMS Contractor shall be as defined individually and collectively in all Sections of this Division specifications together with the associated Point Sheets and Drawings and the associated interfacing work as referenced in the related documents as are listed in Part 1 of this Section.
- B. The FMS work shall consist of the provision of all labor, materials, tools, equipment, software, software licenses, software configurations and database entries, interfaces, wiring, tubing, installation, labeling, engineering, calibration, documentation, samples, submittals, testing, commissioning, training services, permits and licenses, transportation, shipping, handling, administration, supervision, management, insurance, temporary protection, cleaning, cutting and patching, warranties, services, and items, even though these may not be specifically mentioned in these Division documents which are required for the complete, fully functional and commissioned FMS.
- C. Provide a complete, neat and workmanlike installation. Use only manufacturer employees who are skilled, experienced, trained, and familiar with the specific equipment, software and configurations to be provided for this Project.
- D. The FMS Contractor shall be a recognized national manufacturer, installer and service provider of FMS. Distributors, manufacturer's representatives and wholesalers are not acceptable FMS Contractors for this project.
- E. Manage and coordinate the FMS work in a timely manner in consideration of the Project schedules. Coordinate cooperatively with the associated work of other trades so as to assist the progress and not impede or delay the work of associated trades.
- F. The FMS as provided shall incorporate, at minimum, the following integrated features, functions and services:
 - 1. Operator information, alarm management and control functions.
 - 2. Enterprise-level information and control functions.
 - 3. Information management including monitoring, transmission, archiving, retrieval, and reporting functions.
 - 4. Diagnostic monitoring and reporting of FMS functions.
 - 5. Offsite monitoring and management
 - 6. Energy management
 - 7. Indoor Air Quality monitoring and control

1.05 QUALITY ASSURANCE

- A. General
 - 1. The Facility Management System Contractor shall be the primary manufacturer-owned branch office that is regularly engaged in the engineering, programming, installation and service of total integrated Facility Management Systems of similar size, scope and complexity to the FMS specified in this Contract.
 - 2. The FMS Contractor shall have a local branch facility within a 100-mile radius of the job site supplying complete maintenance and support services on a 24 hour, 7-day-a-week basis. This support facility shall have a spare parts inventory valued at a minimum of 10% of the contract value and all necessary test and diagnostic equipment required to install, commission and service the specified FMS.
 - 3. As evidence and assurance of the contractor's ability to support the Owner's system with service and

**Construction of the
SW Arts Performance Theater**

parts, the contractor must have been in the FMS business for at least the last ten (10) years and have successfully completed total projects of at least 10 times the value of this contract in each of the preceding five years.

4. The FMS Contractor shall be a recognized national manufacturer, installer and service provider of FMS. Distributors, manufacturer's representatives and wholesalers will not be acceptable.
5. The FMS software shall be updated to the latest currently available revision at the start of Warranty.

B. Quality Management Program

1. Provide a competent and experienced FMS Project Manager employed by the FMS Contractor. The Project Manager shall be supported as necessary by other FMS Contractor employees in order to provide professional management service for the work. The Project Manger shall be empowered to make technical, scheduling and related decisions on behalf of the FMS Contractor. At minimum, the Project Manager shall:
 - a. Manage the scheduling of the work to ensure that adequate materials, labor and other resources are available as needed.
 - b. Maintain the scheduling of the work and report monthly in writing to the Architect on progress.
 - c. Manage the financial aspects of the FMS Contract.
 - d. Coordinate with the FMS Site Supervisor and with the Architect and other trades as necessary to maintain progress of the Contract.

1.06 REFERENCES

- A. All work shall conform to the following Codes and Standards, as applicable:
 1. National Fire Protection Association (NFPA) Standards.
 2. National Electric Code (NEC) and applicable local Electric Code.
 3. Underwriters Laboratories (UL) listing and labels.
 4. UL 916 Energy Management
 5. American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE).
 6. Air Movement and Control Association (AMCA).
 7. Institute of Electrical and Electronic Engineers (IEEE).
 8. Federal Communications Commission (FCC) including Part 15, Radio Frequency Devices.
 9. Americans Disability Act (ADA)
- B. In the case of conflicts or discrepancies, the more stringent regulation shall apply.
- C. All work shall meet the approval of the Authorities Having Jurisdiction at the project site.

1.07 WORK BY OTHERS

- A. The demarcation of work and responsibilities between the FMS Contractor and other related trades shall be as outlined in the FMS RESPONSIBILITY MATRIX herein.

**Construction of the
SW Arts Performance Theater**

FMS RESPONSIBILITY MATRIX

WORK	FURNISH	INSTALL	Low Volt. WIRING/ TUBE	LINE POWER
FMS low voltage and communicating wiring	FMS	FMS	FMS	N/A
Controllers for VAV Boxes	FMS	15	FMS	FMS
FMS Conduits and Raceway	FMS	FMS	FMS	FMS
Automatic Dampers	FMS	15	N/A	N/A
Manual Valves	15	15	N/A	N/A
Automatic Valves	FMS	15	FMS	FMS
VAV Boxes	15	15	N/A	N/A
Pipe insertion devices and taps including thermowells, flow and pressure stations	FMS	15	FMS	FMS
FMS Current Switches	FMS	FMS	FMS	N/A
FMS Control Relays	FMS	FMS	FMS	N/A
FMS interface with Chiller controls	FMS	FMS	FMS	FMS
Chiller and AHU controls interface with FMS	15	FMS	FMS	FMS
All FMS Nodes, equipment, housings, enclosures and panels	FMS	FMS	FMS	FMS
Smoke Detectors	16	15	16	16
Fire/Smoke Dampers	15	15	FMS	16
Fire Dampers	15	15	N/A	N/A
Chiller Flow Switches	15	15	FMS	N/A
VFDs	15	16	FMS	16
Fire alarm shutdown relay interlock wiring	16	16	16	16
Unit Heater Controls	15	FMS	FMS	16
Starters, HOA Switches	15	16	N/A	16
Control Damper Actuators	FMS	FMS	FMS	FMS

**Construction of the
SW Arts Performance Theater**

1.08 SUBMITTALS

- A. Shop Drawings, Product Data, and Samples
1. The FMS Contractor shall submit a list of all shop drawings with submittal dates within 30 day of contract award.
 2. Submittals shall be in defined packages. Each package shall be complete and shall only reference itself and previously submitted packages. The packages shall be as approved by the Architect and Engineer for Contract compliance.
 3. Allow 15 working days for the review of each package by the Architect and Engineer in the scheduling of the total FMS work.
 4. Equipment and systems requiring approval of local authorities must comply with such regulations and be approved. Filing shall be at the expense of the FMS Contractor where filing is necessary. Provide a copy of all related correspondence and permits to the Owner.
 5. Prepare an index of all submittals and shop drawings for the installations. Index shall include a shop drawing identification number, Contract Documents reference and item description. Submit this index prior to the submittal of any shop drawings and within 4 weeks after Contract award.
 6. At a minimum, submit the following:
 - a. FMS network architecture diagrams including all nodes and interconnections.
 - b. Schematics, sequences and flow diagrams.
 - c. Points schedule for each real and virtual (software) point in the FMS, including: Tag, Point Type, System Name, Object Name, Expanded ID, Display Units, Node Type, Address, Cable Destination, Module Type, Terminal ID, Panel, Slot Number, Reference Drawing, and Cable Number.
 - d. A sample of each Graphic Display screen type and associated menu penetrations to show hierarchy and functional interrelationships.
 - e. A sample of each data visualization display type.
 - f. Detailed Bill of Material list for each Node, identifying quantity, part number, description, and optional features.
 - g. Control Damper Schedule including a separate line for each damper and a column for each of the damper attributes, including: Code Number, Fail Position, Damper Type, Damper Operator, Blade Type, Bearing Type, Seals, Duct Size, Damper Size, Mounting, and Actuator Type.
 - h. Control Valve Schedules including a separate line for each valve and a column for each of the valve attributes: Code Number, Configuration, Fail Position, Pipe Size, Valve Size, Body Configuration, Close off Pressure, Capacity, Valve CV, Calculated CV, Design Pressure, Actual Pressure, and Actuator Type.
 - i. Room Schedule including a separate line for each VAV box and terminal unit indicating minimum/maximum CFM, pickup gain, box area, and bias setting.
 - j. Details of all FMS interfaces and connections to the work of other trades.
 - k. Product data sheets for all products including software.
 - l. Training provided, including outlines for each session.

1.09 RECORD DOCUMENTATION

- A. Operation and Maintenance Manuals
1. Three (3) copies of the Operation and Maintenance Manuals shall be provided to the Owner's Representative upon completion of the project. The entire Operation and Maintenance Manual shall be furnished on Compact Disc media, and include the following for the FMS provided:

**Construction of the
SW Arts Performance Theater**

- a. Table of contents.
 - b. As-built system record drawings. Computer Aided Drawings (CAD) record drawings shall represent the as-built condition of the system and incorporate all information supplied with the approved submittal.
 - c. Manufacturers product data sheets for all products including software.
 - d. System Operator's manuals.
 - e. Archive copy of all site-specific databases and sequences.
 - f. FMS network diagrams.
 - g. Wiring termination schedules.
 - h. Interfaces to all third-party products and work by other trades.
2. The Operation and Maintenance Manual CD shall be self-contained, and include all necessary software required to access the project record drawings and data sheets. A logically organized table of contents shall provide dynamic links to view and print all project record drawings and product data sheets. Viewer software shall provide the ability to display, zoom, and search all documents. The CD-ROM(s) shall contain adequate space for future system updates.
- B. On-line Documentation: After completion of all the tests and adjustments listed above, the contractor shall install the following information on the FMS:
1. "AS-BUILT" drawing files
 2. Detailed catalog data on all installed system components with address and phone number of factory repair service.

1.10 WARRANTY

- A. Standard Material and Labor Warranty
1. Provide a one-year labor and material warranty on the FMS.
 2. If within twelve (12) months from the date of acceptance of product, upon written notice from the owner, it is found to be defective in operation, workmanship or materials, it shall be replaced, repaired or adjusted at the option of the FMS Contractor at the cost of the FMS Contractor
 3. Maintain an adequate supply of materials within 30 miles of the Project site for replacement of key parts and labor support, including programming. Warranty work shall be done during FMS Contractor's normal business hours.
 4. Maintain an on-site record of all work done, all items removed from site, all items returned to site, all new replacement items installed and all remedial programming and database entry work undertaken including software revisions installed. Maintain a record of all re-calibrations required as a result of Warranty service.

PART 2 PRODUCTS

2.01 FMS ARCHITECTURE

- A. General
1. The FMS shall consist of a number of Nodes and associated equipment connected by industry standard network practices. All communication between Nodes shall be by digital means only.
 2. The FMS network shall at minimum comprise of the following:
 - a. Operator Workstations - fixed and portable.
 - b. Network processing, data storage and communication equipment including file servers.

**Construction of the
SW Arts Performance Theater**

- c. Routers, bridges, switches, hubs, modems and the like communications equipment.
 - d. Active processing Nodes including field panels.
 - e. Intelligent and addressable elements and end devices.
 - f. Third-party equipment interfaces.
 - g. Other components required for a complete and working FMS.
3. The FMS shall be accessible via Enterprise Intranet and Internet browser with security protection for user access.
 4. The FMS shall support auto-dial/auto-answer communications to allow FMS Nodes to communicate with other remote FMS Nodes via standard telephone lines.
 5. The PC Workstations, File servers and principal network equipment shall be standard products of recognized major manufacturers available through normal PC vendor channels. "Clones" are not acceptable.
 6. Provide licenses for all software residing in the FMS system and transfer these licenses to the Owner prior to completion.
- B. Network
1. The FMS shall incorporate a primary Tier 1 network. At the Contractor's option, the FMS may also incorporate integrated secondary Tier 2 and tertiary Tier 3 networks.
 2. The FMS Network shall utilize an open architecture capable of:
 - a. Utilizing standard Ethernet communications and operate at a minimum speed of 10Mb/sec
 - b. Connecting via BACnet.
 - c. Connecting via LonMark.
 3. The FMS network shall support both copper and optical fiber communication media.
- C. Third-Party Interfaces
1. FMS Contractor shall integrate real-time data from systems supplied by other trades as required in Part 3.
 2. The FMS system shall include necessary FMS hardware equipment and software to allow data communications between the FMS system and systems supplied by other trades.
 3. The trade contractor supplying other systems will provide their necessary hardware and software and will cooperate fully with the FMS contractor in a timely manner at their cost to ensure the complete data integration.
- D. Power Fail / Auto Restart
1. Provide for the automatic orderly and predefined shutdown of parts or all of the FMS following total loss of power to parts or all of the FMS.
 2. Provide for the automatic orderly and predefined startup of parts or all of the FMS following total loss of power to those parts or all of the FMS. Archive and annunciate time and details of restoration.
 3. Provide for the orderly and predefined scheduling of controlled return to normal, automatically time scheduled, operation of controlled equipment as a result of the auto restart processes.
 4. Maintain the FMS real-time clock operation during periods of power outage for a minimum of 72 hours.
- E. Downloading and Uploading
1. Provide the capability to generate FMS software-based sequences, database items and associated operational definition information and user-required revisions to same on designated OWS, and the means to download same to the associated application AN.
 2. Provide the capability to upload FMS operating software information, database items, sequences and alarms to the designated OWS with automatic archiving of same on the OWS.

**Construction of the
SW Arts Performance Theater**

3. The functions of this Part shall be governed by the codes, approvals and regulations applying to each individual FMS application.

2.02 OPERATOR WORKSTATION

- A. The Operator Workstations (OWS) shall provide the primary means of communication with the FMS and shall be used for operations, engineering, management, audit, reporting and other related functions.
- B. The OWS shall consist of a fixed unit as scheduled in Part 3 of this Specification. The fixed units shall consist of installed PC-based configurations.
- C. Each fixed OWS shall, at minimum, consist of:
 1. PC processor with minimum 64-bit word structure.
 2. Hard drive or equal high-speed data storage.
 3. Removable high-speed data storage and export device(s) such as Read/Write CD ROM or equal.
 4. Full ASCII keyboard and digital Mouse or equal pointing device.
 5. Full color, flat screen VDU display unit, minimum 17 inches diagonal screen, minimum 1280 x 1024 resolution, 0.26 or better dot pitch and minimum 72 Hz refresh rate.
 6. Printers as scheduled in Part 3 of this Specification. Printers shall be monochromatic or full color as scheduled and designed for the functional requirements and duty of the application.
- D. All fixed OWS shall operate independently and concurrently without interference and under individual user password protection.
- E. OWS functionality shall be individually definable by software means such that OWS may be designated for specific limited users and may also be readily re-designated to provide OWS back-up to other OWSs in the FMS.

2.03 OPERATOR INTERFACE

- A. General
 1. The FMS Operator Interface shall be user friendly, readily understood and shall make maximum use of colors, graphics, icons, embedded images, animation, text based information and data visualization techniques to enhance and simplify the use and understanding of the FMS by authorized users at the OWS.
 2. User access to the FMS shall be protected by a flexible and Owner redefinable software-based password access protection. Password protection shall be multi-level and partitionable to accommodate the varied access requirements of the different user groups. Provide the means to define unique access privileges for each individual authorized user. Provide the means to on-line manage password access control under the control of a Master Password.
 3. The Operator Interface shall incorporate comprehensive support for functions including, but not necessarily limited to, the following:
 - a. User access for selective information retrieval and control command execution
 - b. Monitoring and reporting
 - c. Alarm and non-normal condition annunciation
 - d. Selective operator override and other control actions
 - e. Information archiving, manipulation, formatting, display and reporting
 - f. FMS internal performance supervision and diagnostics
 - g. On-line access to user HELP menus
 - h. On-line access to current FMS as-built records and documentation

**Construction of the
SW Arts Performance Theater**

- i. Means for the controlled re-programming, re-configuration of FMS operation and for the manipulation of FMS database information in compliance with the prevailing codes, approvals and regulations for individual FMS applications.
 4. Provide FMS reports and displays making maximized use of simple English language descriptions and readily understood acronyms, abbreviations and the like to assist user understanding and interpretation. All text naming conventions shall be consistent in their use and application throughout the FMS.
 5. All PC-based configurations shall operate on Microsoft(r) Windows 2000.
 6. Each fixed and portable OWS shall be on-line configurable for specific applications, functions and groups of FMS points.
- B. Alarms
 1. Designated OWS shall annunciate alarms generated by the FMS. The alarm management portion of the OWS software shall, at the minimum, provide the following functions
 - a. Log date and time of alarm occurrence.
 - b. Generate a "Pop-Up" window, with audible alarm, informing a user that an alarm has been received.
 - c. Allow a user, with the appropriate security level, to acknowledge, or disable an alarm.
 - d. Provide an audit trail on hard drive for alarms by recording user acknowledgment, deletion, or disabling of an alarm. The audit trail shall include the name of the user, the alarm, the action taken on the alarm, and a time/date stamp.
 2. The FMS shall annunciate diagnostic alarms indicating system failures and non-normal operating conditions
 3. The FMS shall annunciate application alarms at minimum, as required by Part 3.
- C. Reports
 1. Reports shall be generated and directed to one or more of the following: OWS display, printer, or archive at the user's option. As a minimum , the system shall provide the following reports:
 - a. All points in the FMS.
 - b. All points in each FMS application.
 - c. All points in a specific AN.
 - d. All points in a user-defined group of points.
 - e. All points currently in alarm in an FMS application.
 - f. All points locked out in an FMS application.
 - g. All FMS schedules.
 - h. All user defined and adjustable variables, schedules, interlocks and the like.
 - i. FMS diagnostic and system status reports.
 2. Provide for the generation by the user of custom reports as specified in Part 3.
 3. Provide all applicable standard reports of the FMS manufacturer.
- D. Dynamic Color Graphics
 1. An unlimited number of graphic displays shall be able to be generated and executed.
 2. The graphic displays shall be able to display and provide animation based on real-time FMS data that is acquired, derived, or entered.
 3. The user shall be able to change values (setpoints) and states in system controlled equipment.
 4. Provide a graphic editing tool that allows for the creation and editing of graphic files.
 5. FMS system shall be provided with a complete user expandable symbol library containing all of the basic symbols used to represent components of a typical FMS system.
- E. Schedules

**Construction of the
SW Arts Performance Theater**

1. Provide a spreadsheet-type schedule input form for automatic FMS time-of-day scheduling and override scheduling of FMS operations shall be provided. At a minimum, the following spreadsheet types shall be accommodated:
 - a. Weekly schedules.
 - b. Temporary override schedules.
 - c. Special "Only Active If Today Is A Holiday" schedules.
 - d. Monthly schedules.
 2. Schedules shall be provided for each system or sub-system in the FMS. Each schedule shall include all commandable points residing within the system. Each point may have a unique schedule of operation relative to the system use schedule, allowing for sequential starting and control of equipment within the system. Scheduling and rescheduling of points shall be accomplished easily via the system schedule spreadsheets.
 3. Monthly calendars for a 12-month period shall be provided that allow for simplified scheduling of holidays and special days in advance. Holidays and special days shall be user-selected with the pointing device or keyboard, and shall automatically reschedule equipment operation as previously defined on the weekly schedules.
- F. Historical Trending and Data Collection
1. Trend and store point history data for all FMS points and values as selected by the user.
 2. The trend data shall be stored in a manner that allows custom queries and reports using industry-standard software tools.
 3. At a minimum, provide the capability to perform statistical functions on the historical database:
 - a. Average.
 - b. Arithmetic mean.
 - c. Maximum/minimum values.
 - d. Range - difference between minimum and maximum values.
 - e. Standard deviation.
 - f. Sum of all values.
 - g. Variance.

2.04 APPLICATION NODES

- A. General
1. The Application Nodes (AN) shall include all monitoring, control and information Nodes including field panels.
 2. AN shall be programmable and governed by the requirements of their applicable codes, approvals and regulations.
 3. The AN shall be designed, packaged, installed, programmed and commissioned in consideration of their specific service and prevailing operating conditions. They shall be proven standard product of their original manufacturer and not a custom product for this Project.
 4. A failure at an AN shall not cause failures or non-normal operation at any other system AN other than the possible loss of active real-time information from the failed AN.
 5. Ancillary AN equipment, including interfaces and power supplies, shall not be operated at more than 80% of their rated service capacity.
- B. HVAC Nodes
1. HVAC Nodes shall provide both standalone and networked direct digital control of HVAC systems.
 2. A dedicated HVAC Node shall be configured and provided for each primary HVAC system (air handler, chiller) and each terminal HVAC system (VAV Box, Unit Heater, Fan Coil Unit, Cabinet Heater, Fan Powered Box, CV Box)

Construction of the SW Arts Performance Theater

3. Each HVAC Node shall be able to retain program, control algorithms, and setpoint information for at least 72 hours in the event of a power failure, and shall return to normal operation upon restoration of power.
4. Each HVAC Node shall report its communication status to the FMS. The FMS shall provide a system advisory upon communication failure and restoration.
5. For each primary HVAC system, provide means of indication of system performance and setpoints at, or adjacent to the HVAC Node.
6. For each primary HVAC system, provide a means to adjust setpoints and start/stop equipment at, or adjacent to the HVAC Node.
7. Provide a means to prevent unauthorized personnel from accessing setpoint adjustments and equipment control functions.
8. The HVAC Nodes shall provide the ability to download and upload configuration data, both locally at the Node and via the FMS communications network.
9. The HVAC Nodes shall be provided with a permanently-mounted local graphic terminal where required in the sequences of this specification. The local graphic terminal shall provide dynamic graphical representation of the associated system status, with the ability for the operator to enter commands with proper password protection.

2.05 FIELD DEVICES

A. Input Devices

1. Current Switch
 - a. Materials: Encased copper
 - b. Rating: 600vAC
 - c. Mounting: Split Core
 - d. Range: 1.5amps to 50 amps
 - e. Action: Trip point adjustment
 - f. Output: SPST, N.O.
 - g. Special: Status LED
2. Temperature Sensor - Nickel
 - a. Materials: Thin Film Nickel, White Plastic Case with Grey Plastic Base
 - b. Setpoint: Setpoint 55 to 85 degrees F, Single or Dual Adjustment, Graduated Scale (Wall Mount Only)
 - c. Mounting: Wall, Duct, Averaging, Well, Outdoor Air, Bearing, Solar
 - d. Range: -50 to 25 0 degrees F, 0 to 130 degrees F, up to 550 degrees F
 - e. Accuracy: High Precision: +/-0.34F degrees at 70 degrees F, Standard: +/-3.0F degrees at 70 degrees F
 - f. Special: Johnson Controls TE-60xx, 61xx, 63xx, 67xx Series
3. Temperature Sensors
 - a. Materials: Nickel element in a copper tube.
 - b. Mounting: Duct/Pipe, Room
 - c. Range: -50 degrees F to 250 degrees F, 55 degrees F to 85 degrees F
 - d. Accuracy: 0.1%
 - e. Output: Resistive 1000ohms at 70 degrees F
 - f. Special: Duct Element Holder, Brass Well Assembly, Room Mounting Bracket and Cover
4. Thermostat - Line Voltage
 - a. Materials: Cold Rolled Steel, Beige Thermoplastic, Sensing Element-Liquid
 - b. Contact Rating:
 - 1) 6 Ampere Running/ 36 Amps. Locked Rotor at 120 VAC
 - 2) 3.5 Amps. Running/ 21 Amps Locked Rotor at 208 VAC

**Construction of the
SW Arts Performance Theater**

- 3) 3.0 Amps. Running/ 8 Amps Locked Rotor at 240 VAC
 - c. Fan and System Switch Rating:
 - 1) 12 Amps. Running/ 34.8 Amps. Locked Rotor at 120 VAC
 - 2) 6.9 Amps. Running/19.1 Amp. Locked Rotor at 208 VAC
 - 3) 6.0 Amps. Running/17.4 Amps Locked Rotor at 240 VAC
 - d. Mounting: Wall
 - e. Range: 40 to 90 degrees F
 - f. Accuracy: +-2 degrees F
 - g. Differential: Mechanical: Approx. 0.7F degrees
 - h. Special: Johnson Controls T2x and T46 Series
5. Humidity Sensors
- a. Materials: Polymer
 - b. Rating: class 2
 - c. Mounting: Duct or Wall
 - d. Range: 20% to 80%
 - e. Accuracy: +/-3%
 - f. Protection: 0-100% non-condensing
 - g. Output: 0-10vDC, 4-20mA
 - h. Special: Duct or Wall Mounting Kit
- B. Controlled Devices
- 1. Globe Valve, Bronze Control Valve with Brass Trim, Electrically Actuated, 1/2 through 2 in.
 - a. Materials:
 - 1) Body - Cast Bronze
 - 2) Plug – Brass
 - 3) Seat - Brass Against Molded Elastomeric Disc
 - 4) Stem - Stainless Steel
 - 5) Packing - Ethylene Propylene Rubber
 - b. Rating: ANSI Class 250, fluid temp: 35 to 284 degrees F
 - c. Output Flow Maximum: 0.73 through 46.2 Cv
 - d. Special: Shall be Johnson Controls VG7000 Series Bronze Control Valves

PART 3 PERFORMANCE/EXECUTION

3.01 INSTALLATION PRACTICES

- A. FMS Wiring
- 1. All conduit, wiring, accessories and wiring connections required for the installation of the Facility Management System, as herein specified, shall be provided by the FMS Contractor unless specifically shown on the Electrical Drawings under Division 16 Electrical. All wiring shall comply with the requirements of applicable portions of Division 16 and all local and national electric codes, unless specified otherwise in this section.
 - 2. All FMS wiring materials and installation methods shall comply with FMS manufacturer recommendations.
 - 3. The sizing type and provision of cable, conduit, cable trays, and trunking shall be the design responsibility of the FMS Contractor. If complications arise, however, due to the incorrect selection of cable, cable trays, trunking and/or conduit by the FMS Contractor, the Contractor shall be responsible for all costs incurred in replacing the selected components.
 - 4. Class 2 Wiring
 - a. All Class 2 (24VAC or less) wiring shall be installed in conduit unless otherwise specified.

**Construction of the
SW Arts Performance Theater**

- b. Conduit is not required for Class 2 wiring in concealed accessible locations. Class 2 wiring not installed in conduit shall be supported every 5' from the building structure utilizing metal hangers designed for this application. Wiring shall be installed parallel to the building structural lines. All wiring shall be installed in accordance with local code requirements.
 5. Class 2 signal wiring and 24VAC power can be run in the same conduit. Power wiring 120VAC and greater cannot share the same conduit with Class 2 signal wiring.
 6. Perform circuit tests using qualified personnel only. Provide necessary instruments and equipment to demonstrate that:
 - a. All circuits are continuous and free from short circuits and grounds.
 - b. All circuits are free from unspecified grounds; that resistance to ground of all circuits is no less than 50 megaohms.
 - c. All circuits are free from induced voltages.
 7. Provide complete testing for all cables used under this Contract. Provide all equipment, tools, and personnel as necessary to conduct these tests.
 8. Provide for complete grounding of all signal and communications cables, panels and equipment so as to ensure system integrity of operation. Ground cabling and conduit at the panel terminations. Avoid grounding loops
- B. FMS Raceway
 1. All wiring shall be installed in conduit or raceway except as noted elsewhere in this specification. Minimum control wiring conduit size 1/2".
 2. Where it is not possible to conceal raceways in finished locations, surface raceway (Wiremold) may be used as approved by the Architect.
 3. All conduits and raceways shall be installed level, plumb, at right angles to the building lines and shall follow the contours of the surface to which they are attached.
 4. Flexible Metal Conduit shall be used for vibration isolation and shall be limited to 3 feet in length when terminating to vibrating equipment. Flexible Metal Conduit may be used within partition walls. Flexible Metal Conduit shall be UL listed.
- C. Penetrations
 1. Provide firestopping for all penetrations used by dedicated FMS conduits and raceways. All other project firestopping to be by other trade.
 2. All openings in fire proofed or fire stopped components shall be closed by using approved fire resistive sealant.
 3. All wiring passing through penetrations, including walls, shall be in conduit or enclosed raceway.
 4. Penetrations of floor slabs shall be by core drilling. All penetrations shall be plumb, true, and square.
 5. No penetrations in structural elements shall be made before receipt of written approval from the architect.
- D. FMS Identification Standards
 1. Node Identification. All nodes shall be identified by a permanent label fastened to the outside of the enclosure. Labels shall be suitable for the node location.
 2. Cable shall be labeled at a minimum of every 18" with the FMS System manufacturer's name and the type of signal carried within the cable, i.e. Analog Input, Analog Output, Binary Input, Binary Output, 24 VAC.
 3. Each of the cable types specified in Item A shall be of a different color coding for easy identification and troubleshooting. Recommended color coding:
 - a. Analog Input Cable Yellow
 - b. Analog Output Cable Tan
 - c. Binary Input Cable Orange

**Construction of the
SW Arts Performance Theater**

- d. Binary Output Cable Violet
 - e. 24 VAC Cable Gray
 - f. General Purpose Cable Natural
 - g. Tier 1 Comm Cable Purple
 - h. Other Tier Comm Cable Blue
- 4. Raceway Identification. All the covers to junction and pull boxes of the FMS raceways shall be painted with the appropriate color.
 - 5. Wire Identification. All low and line voltage FMS wiring shall be identified by a number, as referenced to the associated shop drawing and as-built drawing, at each end of the conductor or cable. Identification number shall be permanently secured to the conductor or cable and shall be typed.
- E. FMS Node Installation
- 1. The FMS panels and cabinets shall be located as indicated at an elevation of not less than 2 feet from the bottom edge of the panel to the finished floor. Each cabinet shall be anchored per the manufacturer's recommendations.
 - 2. The FMS contractor shall be responsible for coordinating panel locations with other trades and electrical and mechanical contractors.
- F. Input Devices
- 1. All Input devices shall be installed per the manufacturer recommendation
 - 2.
 - 2. Locate components of the FMS in accessible local control panels wherever possible.

3.02 COMMISSIONING

- A. Fully commissioning all aspects of the Facility Management System work.
- B. Acceptance Check Sheet
 - 1. Prepare a check sheet that includes all points for all functions of the FMS
 - 2. Submit the check sheet to the Architect for approval one month prior to testing.
 - 3. Complete the check sheet for all items and functions of the FMS and initial each entry with time/date as record of having fully calibrated and tested the FMS. Submit to Architect.
 - 4. The Architect will use the check sheet as the basis for acceptance testing with the FMS Contractor.
- C. Provide all necessary specialist labor, materials and tools to demonstrate to the Architect a.that the FMS has been commissioned and is operating in compliance with the contract. Prepare a list of noted deficiencies signed by both the Architect and the FMS Contractor.
- D. Promptly rectify all listed deficiencies and submit to the Architect that this has been done.
- E. The Architect will retest the deficiencies in conjunction with the FMS Contractor.

3.03 TRAINING

- A. The FMS Contractor shall provide the following:
 - 1. Written notice to the Owner one (1) week before system to be turned over to Owner
 - 2. Eight (8) hours on site support the day system is turned over
 - 3. Up to eight (8) hours support one (1) week after turnover, at the discretion of Fulton County
 - 4. Up to eight (8) hours support one (1) month after turnover, at the discretion of Fulton County
 - 5. Up to eight (8) hours three to six (3-6) months after turnover when seasons change, at the discretion of Fulton County

**Construction of the
SW Arts Performance Theater**

6. Up to eight (8) hours two (2) weeks before 1-year warranty expires, at the discretion of Fulton County

3.04 SEQUENCES

A. AIR COOLED CHILLER

1. General:
 - a. Control electronically with dedicated stand-alone HVAC Node (HN).
 - b. Provide graphic display terminal mounted on the HN panel face.
 - c. Totalize runtime of the chiller.
 - d. Provide integration of chiller controls with FMS. Integration shall provide monitoring of all data available at the controller via the FMS. Install Communications Interface furnished by the chiller manufacturer. Provide all necessary wiring between communications interface and FMS.
 - e. The FMS shall monitor the common chilled water supply and return temperatures.
 - f. The two (2) chillers shall be operated in a lead-lag arrangement. Lead-lag arrangement shall be changed every week so that runtime of each chiller is approximately equal.
2. System Off:
 - a. Chiller and associated pumps shall be off.
 - b. Chiller isolation valve shall be closed.
3. System Operation:
 - a. The FMS shall monitor the position of all control valves. When there is a call for cooling in the building (any valve open) the chiller shall operate:
 - 1) The chiller isolation valve shall open.
 - 2) Associated pump shall start upon proof that isolation valve is open.
 - 3) Chiller shall be enabled to start when proof of flow has been established.
 - 4) When the chiller is enabled it will load by internal capacity controls.
 - 5) Two (2) chillers shall be sequenced in a lead-lag arrangement to maintain setpoint.
 - b. The chiller shall operate for a minimum of 15 minutes (adj.).
4. System Stop:
 - a. When there is no call for cooling and/or all air handling units are de-energized:
 - 1) Chiller shall be disabled.
 - 2) Associated chilled water pump shall continue to run for 2 minutes (adj.) after chiller shutdown and then be stopped.
 - 3) Associated isolation valve shall close when the chilled water pump is stopped.
 - b. Chiller shall remain off for a minimum of 15 minutes (adj.).
5. Safeties and Alarms:
 - a. The chiller microprocessor shall annunciate discrete alarm conditions.
 - b. When a chiller alarm is initiated, the discrete alarm condition causing the alarm shall be annunciated at the operator workstation.
 - c. Annunciate off-normal alarm whenever chiller status does not equal command.
 - d. Refer also to the Point List.
6. Failure Modes:
 - a. Chiller Failure: If a chiller fails to operate, the chiller shall be disabled and alarm shall be annunciated. Associated pump shall be stopped and isolation valve shall close.
 - b. Pump Failure: If a pump fails to operate, its associated chiller shall shut down and alarm shall be annunciated at the operator workstation. Pump shall be disabled and isolation valve shall close.
 - c. Chiller Isolation Valve Failure: If the chiller isolation valve fails to operate, its associated chiller shall shut down and alarm shall be annunciated at the operator workstation. Isolation valve shall close and pump shall stop.
 - d. Sensor Failure: Upon the failure of an internal analog sensor, the chiller operating controls shall shutdown the chiller. Upon the failure of an FMS analog sensor, an alarm will be annunciated at

**Construction of the
SW Arts Performance Theater**

- the operator workstation.
- B. Primary Loop Chilled Water Constant Flow - 2 Pumps per Chiller
1. General:
 - a. Control electronically with dedicated stand-alone HVAC Node (HN).
 - b. Provide graphic display terminal mounted on the HN panel face.
 - c. Totalize runtime of the chilled water pumps and alternate lead pump every 168 hours of operation (adj.).
 2. System Off:
 - a. The chilled water pumps shall be off.
 3. System Start:
 - a. When the outdoor air temperature rises above the cooling system enable setpoint (65 degrees F, adj.), the lead chilled water pump (operator selectable) shall start.
 - b. A pump shall operate for a minimum of 15 minutes (adj.).
 4. System Run:
 - a. The lead chilled water pump shall run continuously.
 5. System Stop:
 - a. When the outdoor air temperature falls below the cooling system enable setpoint (65 degrees F, adj.), the chilled water pumps shall stop.
 6. Safeties and Alarms:
 - a. Annunciate off-normal alarm whenever pump status does not equal command.
 - b. Refer also to Point List.
 7. Failure Mode:
 - a. Pump Failure: If a pump fails to operate, the lag pump shall be started, the failed pump shall be disabled, and alarm shall be annunciated.
- C. Mixed Air Single Path Variable Volume Electric/Chilled Water Indoor Air Handling Unit
1. General:
 - a. Control electronically with dedicated stand-alone HVAC Node (HN).
 - b. Provide graphic display terminal mounted on the HN panel face.
 - c. The system shall operate on a timed-programmed basis as determined by the system operator (initially set to start at 7:30 AM and stop at 6:30 PM, Monday-Friday).
 2. System Off:
 - a. The supply and return fans shall be off.
 - b. The outside air damper shall be closed.
 - c. The return air damper shall be open.
 - d. The cooling coil valve shall be closed.
 - e. The electric heating shall be off.
 3. System Start:
 - a. When the air-handling unit is indexed to operate, the supply fan shall start first. NOTE: The mixed air dampers and the supply fan speed drive shall be ramped to their respective operating values over a time period (adj., initially set to 5 minutes).
 - b. Upon proof of supply fan operation, dampers and cooling coil valve shall be indexed to their "System Run" conditions.
 - c. The air handler shall be commanded on during the unoccupied mode when any of the associated zones is outside unoccupied setpoint temperature.
 4. System On:
 - a. Unoccupied Heating Mode:
 - 1) Supply Fan: Supply fan shall cycle to maintain space temperature at the unoccupied heating setpoint (adj.). The supply fan shall be controlled to maintain duct static pressure at setpoint (adj., initially set to 2.5" w.c. pa) the supply fan.

**Construction of the
SW Arts Performance Theater**

- 2) Economizer Dampers: Outside air damper is fully closed and return air damper is fully open.
- 3) Electric heating: Heating shall be staged on when room temperature drops below night setpoint.
- 4) Cooling Coil Valve: Fully closed.
- b. Unoccupied Cooling Mode:
 - 1) Supply Fan: Supply fan shall cycle to maintain space temperature at the unoccupied heating setpoint (adj.). The supply fan shall be controlled to maintain duct static pressure at setpoint (adj., initially set to 2.5" w.c. pa).
 - 2) Economizer Dampers: Economizer dampers shall be enabled to provide free cooling when the outside air temperature is below the dry bulb economizer setpoint.
- c. Economizer Available: Outside air and exhaust dampers are fully open and return air damper is fully closed when the supply fan are on.
- d. Economizer Not Available: Outside air and exhaust dampers are fully closed and return air damper is fully open.
 - 1) Cooling Coil Valve: Modulating when fans are on to maintain unoccupied temperature setpoint.
 - 2) Electric heating shall be turned off.
- e. Warm-up Mode:
 - 1) Supply Fan: Supply fan shall start and run continuously. The supply fan speed shall be controlled to maintain duct static pressure setpoint.
 - 2) Economizer Dampers: Outside air damper is fully closed and return air damper is fully open.
 - 3) Electric heating: Heating shall be staged on to bring supply air temperature to setpoint.
 - 4) Cooling Coil Valve: Fully closed.
- f. Cool-down Mode:
 - 1) Supply Fan: Supply fan shall start and run continuously. The supply fan speed shall be controlled to maintain duct static pressure setpoint.
 - 2) Electric heating: Electric heating shall be turned off.
 - 3) Economizer Dampers: Economizer dampers shall be enabled to provide free cooling when the outside air temperature is below the dry bulb economizer setpoint.
 - a) Economizer Available: Economizer dampers shall modulate subject to a mixed air low limit of 40 degrees F (adj.).
 - b) Economizer Not Available: Outside air damper is fully closed and return air damper is fully open.
 - 4) Cooling Coil Valve: Modulate in sequence with the economizer dampers to maintain the discharge air temperature at setpoint as reset by space temperature.
- g. Occupied Mode:
 - 1) Supply Fan: Supply fan shall start and run continuously. The supply fan speed shall be controlled to maintain duct static pressure setpoint.

**Construction of the
SW Arts Performance Theater**

- 2) Economizer Dampers: Economizer dampers shall be enabled to provide free cooling when the outside air temperature is below the dry bulb economizer setpoint.
 - a) Economizer Available: Economizer dampers shall modulate subject to a mixed air low limit of 40 degrees F (adj.).
 - b) Economizer Not Available: The economizer dampers shall maintain a minimum outside air damper position (adj.).
- 3) Heating Mode: In the heating mode, the electric heating shall be controlled to the calculated discharge air setpoint as determined by the error between the actual zone temperature and the zone temperature setpoint of 72 degrees F (adjustable).
- 4) Cooling Coil Valve: Modulate in sequence with the economizer dampers and electric heating to maintain discharge air temperature setpoint as reset by space temperature.
5. System Stop:
 - a. When the air-handling unit is indexed to shut down, the supply and exhaust fans shall stop.
 - b. Dampers and control valve shall be indexed to their "System Off" conditions.
 - c. Electric heating shall shut down.
6. Safeties and Alarms:
 - a. Smoke Control:
 - 1) Duct smoke detector(s) shall stop the supply and exhaust fans and annunciate alarm when products of combustion are detected in the air stream. Dampers and control valve shall be indexed to their "System Off" conditions.
 - 2) The supply and exhaust fans shall be interlocked to shut down upon a command from the building fire alarm system.
 - 3) Upon a return to normal, the supply and exhaust fans shall start after an adjustable delay to provide a staggered start of all building loads.
 - b. Filter Condition: Monitor differential pressure across filter and annunciate alarm when differential pressure setpoint (adj.) is exceeded.
 - c. Low limit: Manual reset low limit thermostat shall stop the supply and exhaust fans, close the outdoor air dampers, fully stage the electric heating on and annunciate alarm should the coil discharge air temperature fall below 38 degrees F.
 - d. High Limit: Manual reset high limit thermostat located in the return air shall stop the supply and exhaust fans and annunciate alarm should the return air temperature rise above 125 degrees F. Dampers and shall be indexed to their "System Off" conditions.
 - e. Fan Volume Control: The variable speed drive on the supply and exhaust fans shall be modulated by a static pressure sensor located in the discharge plenum of the supply fan and a proportional plus integral control shall provide a control signal to the system to provide a static pressure of 2.5" w.g. (adj.) at that point.
 - f. Static High Limit: The static high limit sensor located in the discharge of the supply fan shall shut down the unit and annunciate alarm if discharge static exceeds 3" w.g.(adj.).
7. Failure Modes:
 - a. Fan Failure: If the supply or exhaust fan fails to operate, both fans shall shut down and alarm shall be annunciated. Dampers and control valve shall be indexed to their "System Off" conditions.
 - b. Sensor Failure: Upon the failure of an analog sensor, associated dampers and control valve shall remain at their last position and alarm shall be annunciated.
 - c. Power Failure:
 - 1) Fans: Upon restoration of power, the supply and return fans shall start after an adjustable delay to provide a staggered start of all building loads.
 - 2) Dampers: Economizer dampers shall be provided with spring return actuators to fail to their "System Off" positions

**Construction of the
SW Arts Performance Theater**

- 3) Valves: Cooling valve shall be provided with spring return actuator to fail closed to the coil.
- D. Fan Powered Terminal Unit with Electric Reheat
1. General:
 - a. Terminal unit control dedicated to individual zones using fan powered electric reheat to condition the zone.
 2. System Off:
 - a. The electric heat shall be stopped.
 - b. The damper shall move to the closed position.
 - c. The fan will go to the off position.
 3. System Start:
 - a. The fan powered terminal units shall be energized when the air handling unit serving the unit is energized, or when the DDC system indicates night low limit operation.
 4. System On:
 - a. The terminal unit fan shall run continuously when the unit is energized.
 - b. The primary air flow shall be controlled in response to room temperature. The primary air flow shall have maximum and minimum settings.
 - c. The unit shall increase primary air flow upon a rise in room temperature above the setpoint.
 - d. As the room temperature falls below setpoint the primary air is modulated to its minimum position.
 - e. Upon a further fall in room temperature, the electric heat shall energize to maintain room setpoint.
 5. System Stop:
 - a. The electric heat shall be stopped.
 - b. The damper shall move to the closed position.
 - c. The fan shall move to the off mode.
 6. Safeties and Alarms:
 - a. An alarm shall be noted in the event of a low and/or high temperature limit in the zone sensor.
 - b. Refer also to Point List.
 7. Failure Mode:
 - a. The terminal unit heat shall fail to the off position.
 - b. The terminal unit damper shall fail to the open position
 - c. The fan shall fail to the off position.
- E. Steam Duct Humidifier
1. General:
 - a. Control electronically with dedicated stand-alone HVAC Node (HN).
 - b. Humidity monitored by duct humidity sensor and controlled by a staged or modulating control valve.
 - c. Strap on sensor shall open jacket valve to maintain jacket temperature if applicable.
 - d. Provide graphic display at workstation.
 2. System Off:
 - a. The steam valve shall remain closed.
 3. System Start:
 - a. Upon proof of airflow, system will be enabled to operate.
 - b. When the duct humidity falls below 50% relative humidity (adj.) control valve and jacket valve shall modulate or stage open.
 4. System Run:
 - a. Humidity valve shall modulate or stage to maintain adjustable humidity setpoint of 55% relative humidity.

**Construction of the
SW Arts Performance Theater**

5. System Stop:
 - a. When duct humidity rises above an adjustable setpoint of 60% relative humidity control valve shall modulate closed.
 6. Safeties and Alarms:
 - a. Humidity valve shall be prevented from operating until positive proof of airflow.
 - b. Humidity High Limit: Sensor located downstream from humidifier shall close control valve upon exceeding high humidity limit. Safety can be reset either manually or automatically depending on type of sensor chosen.
 - c. Alarm may be sent to workstation upon high humidity shutdown.
 - d. Refer also to Point List.
 7. Failure Modes:
 - a. If humidification control valve fails to operate or receive signal, the control valve shall return to the closed position and alarm may be annunciated.
- F. Exhaust Fan Occupied/Unoccupied Control
1. General:
 - a. The exhaust fan shall run in different modes when in occupied or unoccupied control.
 2. System Off:
 - a. The exhaust fan shall be in the off mode.
 3. System Start:
 - a. Upon a signal from the FMS system the fan shall start.
 4. System On:
 - a. Upon a call from the FMS the system fan shall start during occupied hours of the day.
 5. System Stop:
 - a. The fan shall stop during unoccupied hours set by the FMS.
 6. Safeties and Alarms:
 - a. The system shall have a manual override switch to turn the system on during unoccupied hours.
 - b. Refer also to Point List.
 7. Failure Modes:
 - a. The fan shall fail to the closed position.
- G. Exhaust Fan Temperature Control Direct Digital Control
1. General:
 - a. Exhaust fan control to maintain a thermostat setpoint throughout the space with direct digital control.
 2. System Off:
 - a. The fan shall move switch to the off position.
 3. System Start:
 - a. Upon a signal from the exhaust fan shall start to maintain a thermostat setpoint.
 4. System On:
 - a. The exhaust/supply fan shall be started and stopped through the automation system through the auxiliary contacts of the associated air handling unit.
 5. System Stop:
 - a. The fan shall move to the off position.
 6. Safeties and Alarms:
 - a. Wall switch: The exhaust/supply fans shall also be started and stopped from a standard wall switch. This switch will override the fan "on" or "off" from the space and bypass the automatic operation with the air handling unit.
 - b. FACP: The fire alarm control system shall be started and stopped from the fire alarm control panel.

**Construction of the
SW Arts Performance Theater**

- c. Refer also to Point List.
- 7. Failure Modes:
 - a. The fan shall fail to the off position.

3.05 POINTS LIST (see following)

SECTION 07 160

FLUID APPLIED WATERPROOFING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. All labor and materials for installing waterproofing, drainage board and protection course and associated accessories.

1.02 RELATED SECTIONS

- A. Section 03300 – Cast-in-Place Concrete

1.03 REFERENCE STANDARDS

- A. ASTM D-36-95 (2000): Standard Test Method for Softening Point of Bitumen (Ring and Ball Apparatus).
- B. ASTM D-5329-04: Standard Test Methods for Sealants and Fillers, Hot Applied for Joints and Cracks in Asphaltic and Portland Cement Concrete Pavements.
- C. ASTM D-3407-78: Standard Test Method for Joint Sealants, Hot Poured, for Concrete and Asphaltic Pavement.

1.04 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on product characteristics, performance criteria, and product limitations.
- C. Certification that all materials are from a single-source manufacturer.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in manufacturer's unopened factory sealed wrapping.
- B. Store materials in a clean, dry area protected from water and direct sunlight.
- C. Store adhesives between 60° F. and 80° F. If exposed to lower temperatures, restore to 60° F minimum temperature before using.

1.06 PROJECT CONDITIONS

- A. Install membrane waterproofing only during clear, dry weather. All application surfaces shall be free of water, dew, frost snow and ice.
- B. Install membrane waterproofing only when ambient air temperatures are above 0° F.
- C. Prepare and apply membrane in well ventilated areas.
- D. Keep membrane free of foreign matter and chemicals prior to installation of protection board.
- E. Concrete wall surface condition: Apply membrane when manufacturer's recommended conditions have been met.

1.07 WARRANTY

- A. Provide single source warranty from manufacturer.
 - 1. Material Warranties (excludes labor): 10 years
 - 2. Watertightness (labor and materials): 5 years

PART 2 PRODUCTS

2.01 BASIS OF DESIGN

- A. Monolithic Membrane 6125-EV
 - 1. Manufacturer: American Hydrotech, Inc.; www.hydrotechusa.com
- B. Acceptable Manufacturers:
 - 1. Carlisle Coatings and Waterproofing, Inc.; www.carlisle-ccw.com.
 - 2. TAMKO Waterproofing Products; www.tamko.com.

2.02 MATERIALS

- A. Membrane: Membrane shall be hot, fluid applied, rubberized asphalt membrane meeting the following CGSB-37.50-M89 standard and other pertinent physical properties:
 - 1. Water Absorption: .11 gram weight gain.
 - 2. Water Resistance: No delamination, blistering, emulsification or deterioration.
 - 3. Elongation: 1000% minimum.
 - 4. Resiliency: 40% minimum.
- B. Surface Conditioner: Provide manufacturer's standard surface conditioner for the substrate where membrane is placed.
- C. Flashing/Reinforcing: Provide 60 mil thick, uncured neoprene flashing/reinforcing sheet.
- D. Adhesives/Sealants: Provide manufacturer's standard adhesives and sealants for bonding flashing together, bonding flashing to substrate and sealing elastomeric seam edges.
- E. Protection Course: Provide manufacturer's recommended extruded polystyrene, rigid, insulating, drainage board.
- F. Filter Fabric Sheet: Provide manufacturer's recommended water permeable polymeric fabric.

PART 3 EXECUTION

3.01 INSPECTION

- A. Examine all surfaces to receive waterproofing membrane. Verify acceptability of substrate for proper installation of membrane. Do not commence work of this section until all substrate defects are corrected.

3.02 PREPARATION

- A. All surfaces must be dry, smooth, free of depressions, voids, protrusions, clean and free of unacceptable curing compounds, form release agents and other surface contaminants.
 - 1. Cast-in-Place Concrete: Concrete surfaces shall be monolithic, smooth, free of voids, spalled areas, laitance, honeycombs, and sharp protrusions.
- B. Cleaning: Thoroughly clean surface to receive membrane using methods approved by membrane manufacturer.
- C. Check: Apply test patch of membrane to substrate to check adhesion. Do not proceed with installation until testing reveals acceptable conditions.

3.03 MEMBRANE INSTALLATION

- A. Apply surface conditioner to concrete using hand held sprayer. Apply conditioner at a rate of 300 to 600 SF/gallon depending on surface texture. Surface conditioner should "tan" the

surface, not blacken it.

1. Allow sufficient time for surface conditioner to thoroughly dry prior to the membrane application.
- B. Membrane Preparation
 1. Heat membrane in double jacketed oil bath or hot air melter with mechanical agitation, specifically designed for the preparation of a rubberized asphalt membrane.
 2. Heat membrane until membrane can be drawn-free flowing at a temperature range between 350° F. and 400° F.
- C. Flashing: Install flashings as recommended by membrane manufacturer. Complete all flashings before installation of the membrane field.
- D. Membrane Application: Apply rubberized asphalt membrane at a rate to provide a continuous, monolithic coat of 180 mil minimum, but not less than 125 mil thickness.

3.04 PROTECTION LAYER INSTALLATION

- A. Install protection sheet/rigid insulation board into themembrane while still hot to ensure proper bond.
- B. Overlap adjoining sheet edges (dry) a minimum 2"-3" to ensure complete coverage. Do not overlap rigid insulation board materials.
- C. Inspect installation for compliance with manufacturer's recommendations. Correct any deficiencies prior to backfilling.

3.05 BACKFILLING

- A. Install gravel, filter fabric and French drain against protection board and membrane as indicated on the drawings and as recommended by the membrane manufacturer.
- B. Complete earth backfilling operation as specified in other sections.

END OF SECTION

SECTION 03 910

CEMENTITIOUS CONCRETE COATINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. All labor and materials for the complete exterior installation of cementitious colored concrete coatings in locations as indicated on the drawings.

1.02 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide manufacturer's standard printed product literature including installation and maintenance instructions.
- C. Shop Drawings: Indicate pattern layout for installation .
- D. Samples: Submit two finish samples, 2 inch x 6 inch in size, illustrating manufacturer's standard color palette and all variations in finish colors and textures.
- E. Manufacturer's Instructions: Indicate in writing all directions for installation.
- F. Maintenance Data: Submit all written recommendations for cleaning and maintaining surfaces.
- G. Warranty: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.03 PRE-INSTALLATION MEETING

- A. Two weeks prior to installation and after all approved submittals have been executed, conduct an on-site meeting to review installation procedures and field conditions. Do not begin installation until all conditions for installation are acceptable to the manufacturer.

1.04 DELIVERY, STORAGE, AND PROTECTION

- A. Deliver seating to project site in manufacturer's standard unopened protective wrapping.
- B. Store all materials under cover and elevated above grade.

1.05 PROJECT CONDITIONS

- A. Coordinate seating installation with size, location and installation of service utilities.

1.06 WARRANTY

- A. See Section 01780 - Closeout Submittals, for additional warranty requirements.
- B. Correct defective Work within a five year period after Date of Substantial Completion.
- C. Provide five year manufacturer warranty for seating and seating components.

PART 2 PRODUCTS

2.01 BASE BID MANUFACTURER

- A. Cementitious Concrete Coating System
 - 1. Product: Micro-Top.
 - a. Manufacturer: Bomanite Corporation; www.bomanite.com
 - b. Products:
 - 1) Semi-rigid elastomeric filler: Provide crack filler at all "working" crack and construction

- joints or as recommended by the manufacturer. Provide approved filler material compatible with adjacent substrate materials.
- 2) Cementitious coating: Provide manufacturer's standard coating in approved colors.
- 3) Sealer: Provide surface sealer with non-skid additive as recommended by the manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Inspect all areas to receive coating system and evaluate requirements for product installation.
 - 1) Test concrete for conformance with ASTM F 1869-98 and/or ASTM E 1907-97.
 - 2) pH level: Concrete shall have a pH level between 7-9.
- B. Correct all defective areas prior to installation of materials.

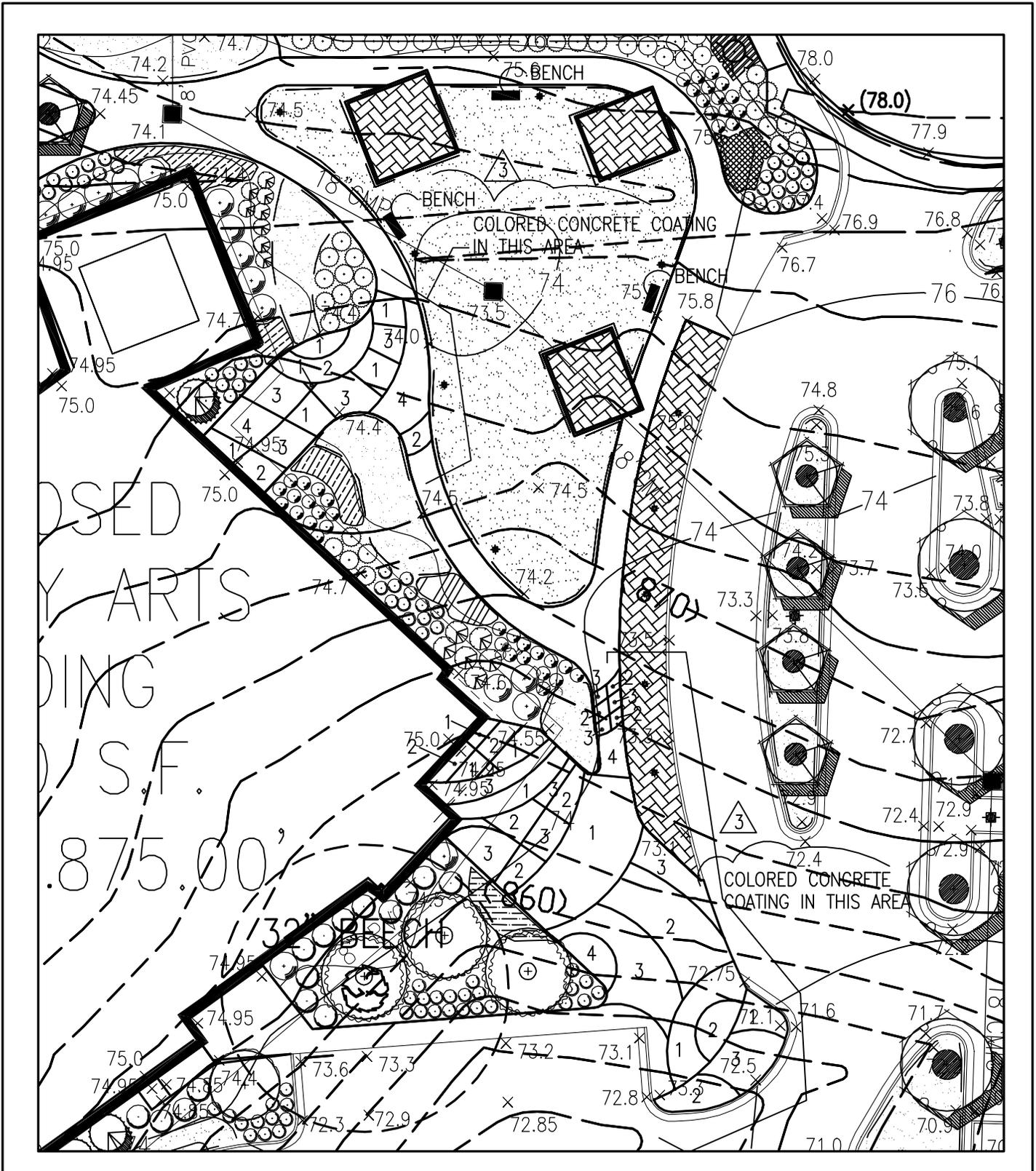
3.02 INSTALLATION

- A. Install semi-rigid elastomeric joint materials as recommended by the coating manufacturer.
- B. Concrete Surface Preparation: Follow manufacturer's recommended procedures for abrading surfaces or applying concrete conditioning agents.
- C. Temperature: Maintain minimum 40° F. throughout application and initial 24-hour cure.
- D. Layout: Line off areas to receive color coating. Follow manufacturer's recommendations for edge masking and protection of adjacent surfaces and completed colorations.
- E. Coatings: Apply sequential coatings as recommended by the manufacturer.
 - 1. Base Coat
 - 2. Second Coat: 20 mil thickness.
 - 3. Third Coat: For texture and finish.
- F. After initial curing (10-12 hours) apply water-based acrylic sealer with non-skid additive as recommended by the manufacturer.

3.03 PROTECTION

- A. Protect completed surfaces until sealed. Do not allow water to stand on surfaces
- B. Clean all visible surfaces after installation s recommended by the manufacturer.
- C. Protect installation from subsequent construction operations.

END OF SECTION



**GARDNER
SPENCER
SMITH
TENCH
&
HENSLEY**

127 Peachtree Street
Suite 1020
Atlanta, Georgia 30303
Tel: 404-522-6805
Fax: 404-521-2118

PROJECT NAME	PROJECT NO.	DATE	SHEET NO.
FULTON COUNTY SW ARTS CENTER PHASE II	01145	8-12-05	SK36
SHEET TITLE	REF. SHT.	REVISION	SCALE
CONCRETE ART PATTERNS AND BENCH LOCATIONS	L1.2	Addend. #3	1"=30'-0"

SECTION 01 030 – BID ALTERNATES

1. DEFINITIONS, STANDARDS AND SUBMITTALS

- A. The Bid Alternates listed and described below have been established and shall include the following:
1. The furnishing of all management, supervision, installation, start-up and service labor, materials, tools, equipment, overhead and profit.
 2. Complete coordination of the work in each Bid Alternate's scope of work with the work of all other trades, regardless of whether these trades are in the employment of the Contractor, or of the County or Construction Manager.
 3. All appropriate corresponding additions or deductions for materials being replaced or modifications to the structure, which must be made as a result of the addition or deletion of, the item(s) covered by each Bid Alternate.
 4. Although such work may not be specifically indicated, the furnishing and installation of all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
 5. If incorporated into the project, each Bid Alternate shall be considered to be subject to all terms and conditions of the Contract, including, but not necessarily limited to the Owner-Contractor Agreement, all Sections of the General Requirements, and all applicable Sections of the Technical Specifications.
- B. Quality Assurance: See individual Specification Sections for required standards modified to conform to alternate conditions.
- C. Submittals: See individual Specification Sections for required submittals modified to conform to alternate conditions.

2. ACCEPTANCE AND INCORPORATION OF BID ALTERNATES

- A. The County reserves the right to accept or reject any and/or all of the Bid Alternates. Bid Alternates shall remain valid for a period of ninety (90) days from the date of bid. Bid Alternates may be awarded after award of the Base Contract, and if so, shall be incorporated into the Contract by change order.
- B. The price of each Bid Alternative and any combination thereof may be considered in the evaluation for award of any and/or all proposed prices for the Bid Alternates.

3. DESCRIPTION OF BID ALTERNATES

- A. Bid Alternate No. 1: delete special brick coursing design at west elevation and related corners and replace with buff color brick (reference elevations 1/A8, 2/A8, 2/A10, 1/A11).
- B. Bid Alternate No. 2: add scored and stained concrete to front plaza (reference drawing L-1.2)
- C. Bid Alternate No.3A – 3L: deduct Theater Seating allowance (reference Section 01 020 Allowances and 12 200 Theatre Seating) and replace with :
- 3A. KI Concerto chair as specified in Section12 200 in COM fabric
 - 3B. KI Concert chair as specified in Section12 200 in manufacturer's Grade 2 fabric
 - 3C. KI Lancaster chair as specified in Section12 200 in COM fabric
 - 3D. KI Lancaster chair as specified in Section12 200 in manufacturer's Grade 2 fabric
 - 3E. American Seating Stellar chair as specified in Section12 200 in COM fabric
 - 3F. American Seating Stellar chair as specified in Section12 200 in manufacturer's Grade 2 fabric
 - 3G. American Seating Stellar chair as specified in Section12 200 in manufacturer's Grade 4 fabric
 - 3H. American Seating Spirit chair as specified in Section12 200 in COM fabric
 - 3I. American Seating Spirit chair as specified in Section12 200 in manufacturer's Grade 2 fabric
 - 3J. American Seating Spirit chair as specified in Section12 200 in manufacturer's Grade 4 fabric
 - 3K. Hussey Quattro chair as specified in Section12 200 in COM fabric
 - 3L. Hussey Quattro chair as specified in Section12 200 in manufacturer's Grade K fabric
 - 3M. Irwin Seating Citation chair as specified in Section12 200 in COM fabric
 - 3N. Irwin Seating Citation chair as specified in Section12 200 in manufacturer's Grade D fabric.
 - 3O. Irwin Seating Marquis chair as specified in Section12 200 in COM fabric
 - 3P. Irwin Seating Marquis chair as specified in Section12 200 in manufacturer's Grade D fabric.

Manufacturer's representatives for Theatre Seating Alternates are:

KI (Krueger International Inc.)
Stephen Rier / District Sales Mgr
KI - Georgia
678.461.9876 phone
678.461.9620 fax
Stephen.Rier@ki.com

American Seating
Danez Black
BlackSmith, LTD.
770.507.9226 x 12 phone
770.507.9027 fax
dblack@blacksmithltd.com

Hussey

Beth Hall, Estimator
Georgia Institutional Furnishings
770.486.643
770.486.6432
gif@bellsouth.net

Irwin Seating

Tripp Copeland
GSE
770.461.2090
770.460.2517

END OF SECTION 01 030, BID ALTERNATES

SECTION 00 300 – BID FORM

**SW Arts Performance Theater
Bid No. 05ITB 45467K-RS**

Submitted _____, 2005.

TO: OWNER

BOARD OF COMMISSIONERS OF FULTON COUNTY
c/o Fulton County Purchasing Department
130 Peachtree Street, S.W., Suite 1168
Atlanta, Georgia 30303

FROM: Bidder

Name: _____

Business Address: _____

Business Phone: _____ Business Fax: _____

The above Bidder is:

- An Individual
- A Company
- A Corporation
- A Partnership
- A Limited Liability Corporation
- A Joint Venture consisting of _____

and _____

and _____

BASE BID AMOUNT (Do not include any Bid Alternates)

\$ _____
(Dollar Amount in Numbers)

(Dollar Amount in Words)

1. BASE BID

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

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

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

The Bidder agrees hereby to commence work under this Contract, with adequate personnel and equipment, on a date to be specified in a written order of the Contracting Officer and to fully complete all work under this Contract within the schedule indicated in this bid document.

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

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

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

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

2. UNIT PRICES

Refer to Section 01 027 for a description and schedule of Unit Prices. The County shall have the option of exercising any or all of the below Unit Prices at the proposed prices at any point in the project.

UNIT PRICE AMOUNTS <i>All items furnished and installed, based on project-specified materials</i>				
Item No.	Description	Unit	Add	Delete
Site Work				
1	Rock Removal & Off-Site Disposal	Cu. Yd.	\$	\$
2	Unsuitable Soil Removal & Off-Site Disposal	Cu. Yd.	\$	\$
3	Importing soil suitable for structural backfilling	Cu. Yd.	\$	\$
Doors, Frames & Hardware				
4	F & I interior door & frame: Door Type A	Each	\$	\$
5	F & I interior door & frame: Door Type B	Each	\$	\$
6	F & I std. interior lever lockset; hardware set no. 9	Each	\$	\$
7	F & I std. interior storage lockset; hardware set no. 6	Each	\$	\$
8	F & I interior CMU partition type A	LF	\$	\$
9	F & I rated interior CMU partition type A1	LF	\$	\$
10	F & I interior GWB partition type H	LF	\$	\$
11	F & I interior GWB sound partition type J	LF	\$	\$
Ceilings				
12	F & I std. 2' x 2' ceiling grid	SF	\$	\$
13	F & I std. 2' ceiling tee	EA	\$	\$
14	F & I std. 2' x 2' ceiling tile: ACT-1	SF	\$	\$
15	F & I std. 2' x 2' ceiling tile: ACT-2	SF	\$	\$
16	F & I std. 2' x 2' ceiling tile: ACT-3	SF	\$	\$
17	F & I GWB ceiling	SF	\$	\$
Finishes				
18	F & I horizontal blinds MB-1	SF	\$	\$

19	F & I sun blinds B-1	SF	\$	\$
20	F & I wallcovering WC-1	SF	\$	\$
21	F & I wallcovering WC-2	SF	\$	\$
22	F & I wallcovering WC-3	SF	\$	\$
23	F & I wallcovering WC-4	SF	\$	\$
24	F & I wallcovering WC-5	SF	\$	\$
25	F & I ceramic wall tile CWT-1	SF	\$	\$
26	F & I ceramic wall tile CWT-2	SF	\$	\$
27	F & I carpet tile CPT-1	SY	\$	\$
28	F & I carpet tile CPT-2	SY	\$	\$
29	F & I carpet tile CPT-3	SY	\$	\$
30	F & I vinyl composite tile VCT-1	SF	\$	\$
31	F & I ceramic floor tile CFT-1	SF	\$	\$
32	F & I wood base WB-1	LF	\$	\$
33	F & I resilient base B-1	LF	\$	\$
Life Safety				
34	F & I sprinkler head	EA	\$	\$
35	Relocate installed sprinkler head	EA	\$	\$
36	F & I fire strobe & annunciator	EA	\$	\$
37	F & I smoke detector	EA	\$	\$
Mechanical				
38	F & I 2x2 diffuser w/ flex & spin-ins	EA	\$	\$
39	F & I 4' w slot diffuser w/ flex & spin-ins	EA	\$	\$
40	F & I 2x2 return	EA	\$	\$
41	F & I sheet metal ductwork	LS	\$	\$
42	F & I thermostat	EA	\$	\$
43	F & I VAV box	EA	\$	\$
44	F & I fire damper for returns	EA	\$	\$
45	F & I fire damper for supply duct	LS	\$	\$
Electrical				

46	F & I std. 2x4 fixture type B	EA	\$	\$
47	F & I std. 2x4 emergency fixture type BE	EA	\$	\$
48	F & I std. 2x2 fixture type B2	EA	\$	\$
49	F & I std. 2x2 emergency fixture type B2E	EA	\$	\$
50	F & I std. compact fluorescent fixture type D	EA	\$	\$
51	F & I std. emergency compact fluorescent fixture type DE	EA	\$	\$
52	F & I std. compact fluorescent fixture type D1	EA	\$	\$
53	F & I std. emergency compact fluorescent fixture type D1E	EA	\$	\$
54	F & I std. compact fluorescent fixture type D2	EA	\$	\$
55	F & I std. compact fluorescent fixture type D4	EA	\$	\$
56	F & I std. (Exterior bollard)	EA	\$	\$
57	F & I std. (Exterior parking light)	EA	\$	\$
58	F & I std. exit sign fixture type X	EA	\$	\$1
59	F & I std. duplex electrical outlet	EA	\$	\$
60	F & I std. quadraplex electrical outlet	EA	\$	\$
61	F & I std. conduit, backer box & pulls string for voice/data outlet	EA	\$	\$

3. OWNER ALLOWANCES

Refer to Section 01 020 for a description and schedule of Owner Allowances. All allowances are to be included in the Total Base Bid Amount for this Contract.

4. BID ALTERNATES

Refer to Section 01 030 for a description and schedule of Bid Alternates. The County shall have the option of exercising any or all of the below Bid Alternates at the proposed prices for up to sixty (60) days after receipt of bids.

BID ALTERNATE AMOUNTS		
Deduct Alternate 1	Delete special coursing design in brick at west elevation and related corners and replace with buff color brick (reference elevations 1/A8, 2/A8, 2/A10, & 1/A11)	\$

Add Alternate 2	Add scored and stained concrete to front plaza (reference drawing L-1.2)	\$
Deduct Alternate 3A	Delete Theater Seating allowance and replace with KI Concerto chair in COM fabric as specified in Section 12 200	\$
Deduct Alternate 3B	Delete Theater Seating allowance and replace with KI Concerto chair as specified in Section 12 200 in manufacturer's Grade 2 fabric	\$
Deduct Alternate 3C	Delete Theater Seating allowance and replace with KI Lancaster chair as specified in Section 12 200 in manufacturer's Grade 2 fabric	\$
Deduct Alternate 3D	Delete Theater Seating allowance and replace with KI Lancaster chair as specified in Section 12 200 in manufacturer's Grade 2 fabric	\$
Deduct Alternate 3E	Delete Theater Seating allowance and replace with American Seating Stellar chair in COM fabric as specified in Section 12 200	\$
Deduct Alternate 3F	Delete Theater Seating allowance and replace with American Seating Stellar chair as specified in Section 12 200 in manufacturer's Grade 2 fabric	\$
Deduct Alternate 3G	Delete Theater Seating allowance and replace with American Seating Stellar chair as specified in Section 12 200 in manufacturer's Grade 4 fabric	\$
Deduct Alternate 3H	Delete Theater Seating allowance and replace with American Seating Spirit chair in COM fabric as specified in Section 12 200	\$
Deduct Alternate 3I	Delete Theater Seating allowance and replace with American Seating Spirit chair as specified in Section 12 200 in manufacturer's Grade 2 fabric	\$
Deduct Alternate 3J	Delete Theater Seating allowance and replace with American Seating Spirit chair as specified in Section 12 200 in manufacturer's Grade 4 fabric	\$
Deduct Alternate 3K	Delete Theater Seating allowance and replace with Hussey Quattro chair in COM fabric as specified in Section 12 200	\$
Deduct Alternate 3L	Delete Theater Seating allowance and replace with Hussey Quattro chair as specified in Section 12 200 in manufacturer's Grade K fabric	\$
Deduct Alternate 3M	Delete Theater Seating allowance and replace with Irwin Seating Citation chair in COM fabric as specified in Section 12 200	\$
Deduct Alternate 3N	Delete Theater Seating allowance and replace with Irwin Seating Citation chair as specified in Section 12 200 in manufacturer's Grade D fabric	\$

Deduct Alternate 3O	Delete Theater Seating allowance and replace with Irwin Seating Marquis chair in COM fabric as specified in Section 12 200	\$
Deduct Alternate 3P	Delete Theater Seating allowance and replace with Irwin Seating Marquis chair as specified in Section 12 200 in manufacturer's Grade D fabric	\$

5. ADDENDA ACKNOWLEDGMENT

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

ADDENDUM # _____ DATED _____

6. SCHEDULE

The Bidder agrees to commence Work under this Contract on a date to be specified in the written Notice to Proceed from the County and to comply with all schedule milestones, completion dates, and procedures contained in the Contract Documents.

7. BID GUARANTEE

Required to accompany this Bid is a Bid Bond, made payable to the Board of Commissioners of Fulton County, which is not less than five percent (5%) of the Base Bid. No other form of Bid Guarantee will be allowed. The Bidder agrees that the above stated amount is the amount of liquidated damages due and payable to the County in the event the undersigned fails to execute the Contract and deliver the bonds and other submittals required.

8. NON-DISCRIMINATION IN CONTRACTING & PROCUREMENT

As noted in the Instructions to Bidders, County policy prohibits discrimination in contracting and procurement in County projects. The Bidder acknowledges receipt

of instructions and exhibits regarding this policy, including informational forms that must be submitted with this Bid.

9. EQUAL EMPLOYMENT OPPORTUNITY

In submitting this Bid, the Bidder acknowledges that it has read and understands the Owner's Equal Opportunity Employment requirements, and agrees that during the performance of the Contract the Bidder will comply with said provisions, which include periodic submission by the Design/Builder and its subcontractors and sub consultants of a Worker Utilization Report.

10. COMMUNITY WORKFORCE PROGRAM

The Bidder agrees that a training and employment program shall be provided for residents of the County per the requirements of Section 00 246 of the Bid Manual. The Bidder agrees that it will use reasonable efforts to achieve the goal stated therein. Bidder agrees to prepare and deliver to the County a plan for implementation of such program.

11. CONCLUSIONS

It is understood that the County shall have the right to waive any informality or irregularity in any bid received, and that it will have the right to reject any or all bids and to re-bid the Contract.

Respectfully submitted:

By: _____
(Authorized signature)

Name: _____

Title: _____

(Seal if by Corporation)

If Bidder is a Joint Venture, include signatures of all joint venture partners below.

By: _____

Title: _____

Firm: _____ (Seal if by Corporation)

By: _____

Title: _____

Firm: _____ (Seal if by Corporation)

By: _____

Title: _____

Firm: _____ (Seal if by Corporation)

END OF SECTION 00 300, BID FORM