

ADVERTISEMENT FOR BIDS  
COBB COUNTY PURCHASING DEPARTMENT

**BID OPENING DATE: AUGUST 27, 2009**

Cobb County will receive Sealed Bids before 12:00 NOON, August 27, 2009 in the Cobb County Purchasing Department, 1772 County Services Parkway, Marietta, GA 30008 for:

**SEALED BID # 09 – 5437  
PURCHASE AND INSTALLATION OF AUDIOVISUAL SYSTEM  
COBB COUNTY PROPERTY MANAGEMENT DEPARTMENT**

**PRE-BID/PROPOSAL MEETING: AUGUST 10, 2009 @ 10:00 A.M. (EST)**  
COBB COUNTY PURCHASING DEPARTMENT  
1772 COUNTY SERVICES PARKWAY  
MARIETTA, GEORGIA 30008

**No bids will be accepted after the 12:00 noon deadline.**

Bids are opened at 2:00 p.m. at Cobb County Purchasing Department, 1772 County Services Parkway, 2nd Floor, Bid/Meeting Room, Marietta, GA 30008. Bids received after the date and time indicated will not be considered.

No bid may be withdrawn for a period of sixty (60) days after date of bid opening, unless otherwise specified in the bid documents. Cobb County will consider the competency and responsibility of bidders in making the award. Cobb County reserves the right to reject any and all bids, to waive informalities and technicalities, to reject portions of the bids, and to award contracts in a manner consistent with the County and the laws governing the State of Georgia.

This solicitation and any addenda are available for download in PDF format on the Cobb County purchasing website. [www.purchasing.cobbcountyga.gov](http://www.purchasing.cobbcountyga.gov)

To request a copy of the proposal documents, **FAX** the following information to the Purchasing Department @ 770-528-1154 or **e-mail** requests to [purchasing@cobbcounty.org](mailto:purchasing@cobbcounty.org):

Company name, contact name, company address, phone number and fax number.

Please reference the proposal number and the title of the proposal in the request.

Advertise: JULY 31, 2009  
AUGUST 7, 14, 21, 2009



SUBMIT BID/PROPOSAL TO:  
**COBB COUNTY PURCHASING DEPARTMENT**  
**1772 COUNTY SERVICES PARKWAY**  
**MARIETTA, GA 30008-4012**

**BID/PROJECT NUMBER: 09-5437**  
**PURCHASE AND INSTALLATION OF AUDIOVISUAL SYSTEM**  
**COBB COUNTY PROPERTY MANAGEMENT DEPARTMENT**

**DELIVERY DEADLINE: AUGUST 27, 2009 BEFORE 12:00 (NOON) EST**  
**(NO BIDS/PROPOSALS WILL BE ACCEPTED AFTER THIS DEADLINE).**

BID OPENING DATE: AUGUST 27, 2009 @ 2:00 P.M. IN THE PURCHASING DEPARTMENT BID ROOM.

BUSINESS NAME AND ADDRESS INFORMATION:

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

CONTACT NAME: \_\_\_\_\_

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

E-MAIL ADDRESS: \_\_\_\_\_

PHONE NUMBER: \_\_\_\_\_

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

NAME AND OFFICIAL TITLE OF OFFICER GUARANTEEING THIS QUOTATION:

\_\_\_\_\_  
(PLEASE PRINT/TYPE)      NAME      TITLE

SIGNATURE OF OFFICER ABOVE: \_\_\_\_\_  
(SIGNATURE)

TELEPHONE: \_\_\_\_\_ FAX: \_\_\_\_\_

BIDDER WILL INDICATE TIME PAYMENT DISCOUNT: \_\_\_\_\_

BIDDER SHALL INDICATE MAXIMUM DELIVERY DATE: \_\_\_\_\_

BIDS RECEIVED AFTER THE DATE AND TIME INDICATED WILL NOT BE CONSIDERED. COBB COUNTY RESERVES THE RIGHT TO REJECT ANY AND ALL BIDS, TO WAIVE INFORMALITIES, TO REJECT PORTIONS OF THE BID, TO WAIVE TECHNICALITIES AND TO AWARD CONTRACTS IN A MANNER CONSISTENT WITH THE COUNTY AND THE LAWS GOVERNING THE STATE OF GEORGIA.

THE ENCLOSED (OR ATTACHED) BID IS IN RESPONSE TO INVITATION NUMBER 09-5437; IS A FIRM OFFER, AS DEFINED BY SECTION O.C.G.A. (S) 11-2-205 OF THE CODE OF GEORGIA (GEORGIA LAWS 1962 PAGES 156-178), BY THE UNDERSIGNED BIDDER. THIS OFFER SHALL REMAIN OPEN FOR ACCEPTANCE FOR A PERIOD OF 60 DAYS CALENDAR DAYS FROM THE BID OPENING DATE, AS SET FORTH IN THIS INVITATION TO BID UNLESS OTHERWISE SPECIFIED IN THE BID DOCUMENTS.

**NOTICE TO BIDDERS - - BID QUOTES MUST INCLUDE INSIDE DELIVERY CHARGES**

Advertise Dates: JULY 31, 2009  
AUGUST 7, 14, 21, 2009

## BIDDING INSTRUCTIONS – TERMS AND CONDITIONS

### 1. PREPARATION OF BID:

- (A) Bidders are expected to examine the drawings, specifications, schedules, and all instructions. Failure to do so will be at the bidder's risk.
- (B) Each bidder shall furnish the information required by the bid form. The bidder shall sign and print or type his/her name where designated. The person signing the bid must initial erasures or other changes.
- (C) Unit price for each quotation shall be shown and such price shall include packing unless otherwise specified, along with a total and grand total where applicable. In case of discrepancy between a unit price and extended price, the unit price will be presumed correct.
- (D) Where not otherwise specified, bidders must definitely state DATE OF DELIVERY.

### 2. EXPLANATION TO BIDDERS:

Any explanation desired by a bidder regarding the meaning or interpretation of Invitation to Bids, Request for Proposals or Qualifications, drawings, specifications, etc., must be in writing. All questions must be received within seven (7) business days prior to the bid opening date for a response to be generated by the County to all bidders in the form of an addendum. If any statement in the bidding documents, specifications, etc., appears ambiguous to the bidder, the bidder is specifically instructed to make a written request to the Purchasing Department, unless otherwise outlined in the specifications. Any information given to a prospective bidder concerning an Invitation for Bid will be furnished to all prospective bidders, as an addendum to the invitation, if such information is necessary to bidders in submitting bids on the invitation or if the lack of such information would be prejudicial to uninformed bidders. Receipt of the addendum by a bidder must be acknowledged on the bid or by letter received before the date and time specified for the bid opening. **ORAL EXPLANATION OR INSTRUCTIONS GIVEN BEFORE THE AWARD OF THE CONTRACT WILL NOT BE BINDING.**

### 3. SUBMISSION OF BIDS: FACSIMILE BIDS WILL NOT BE CONSIDERED.

- (A) Any Bid Package and modifications thereof shall be enclosed in a sealed envelope, addressed to the office specified in the Invitation to Bid, with the name and address of the bidder, the date and hour of bid opening, and name of bid. A bid reply label will be included in most bid packages stating the above referenced information. Any bid package NOT having bid information on outside of package could be opened as regular mail, and bid could be disqualified.
- (B) Samples of items, when required, must be submitted within the time specified, unless otherwise specified by the County, and at no expense to the County
- (C) An item offered must at least meet specifications called for and must be of quality which will adequately service the purpose and use for which it was intended.
- (D) Full identification of each item bid upon, including brand name, make, model, and catalog number, must be furnished according to the bid specifications if requested to identify exactly what the bidder is proposing. Supporting literature may be furnished to further substantiate the proposal.
- (E) The bidder represents that the article(s) to be furnished under this Invitation to Bid is (are) new and that the quality has not deteriorated so as to impair its usefulness.
- (F) Bids cannot be withdrawn or corrected after the bid opening (except reductions or changes by the successful bidder which would be beneficial or advantageous to the County). The County as deemed necessary may reject changes.
- (G) Cobb County is exempt from Federal Excise Tax and Georgia Sales Tax.
- (H) Cobb County does not accept conditional bids.

### 4. DEFAULT:

The Award as a result of bids received under this invitation may be in part based on the delivery factor. Accordingly, should delivery fail to be performed within the time specified by the bidder, the bid may then be declared in default of the contract. In such event, the County may then proceed to purchase in the open market the items from another source.

### 5. F.O.B. POINT:

Unless otherwise stated in the Invitation to Bid and any resulting contract, all articles will be F.O.B. Destination. This means delivered, unloaded, and placed in the designated place.

### 6. AWARD OF CONTRACT:

The Contract will be awarded to the responsible bidder whose bid will be the most advantageous to the County, price, and other factors considered. The County will make the determination. The County reserves the right at any time to reject any and all bids, to waive informalities and technicalities, to award portions of the bid, and to award contracts consistent with the County and the laws governing the State of Georgia. Normal payment terms are net thirty (30) days after receipt of invoice by the Finance Department.



**COBB COUNTY**  
PURCHASING DEPARTMENT  
1772 County Services Parkway  
Marietta, Georgia 30008-4012  
(770) 528-8400/FAX (770) 528-1154  
www.cobbcounty.org

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## **IMPORTANT NOTICE – PLEASE READ CAREFULLY!!**

All vendors are required to submit the ORIGINAL AND AT LEAST one (1) duplicated copy of any bid submitted to Cobb County. Please refer to your bid specifications to determine if more than one (1) copy is required. Non-submission of a duplicate copy may disqualify your bid/proposal.

A “**SEALED BID LABEL**” has been enclosed to affix to your bid. This label ***MUST*** be affixed to the outside of the envelope or package, **even if it is a “NO BID” response**. Failure to attach the label may result in your bid being opened in error or not being routed to the proper location for consideration. No bid will be accepted after the date and time specified. **IT IS THE VENDOR’S RESPONSIBILITY TO ENSURE THAT EACH BID HAS BEEN RECEIVED IN A TIMELY MANNER.**

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### **BIDS MUST BE RECEIVED BEFORE 12:00 (NOON) ON BID OPENING DAY**

Bids must be received at the Cobb County Purchasing Department. **Any bids received later than 12:00 (noon) will not be accepted.** The County accepts no responsibility for delays in the mail. Bids are to be mailed or hand delivered to:

COBB COUNTY PURCHASING DEPARTMENT  
1772 COUNTY SERVICES PARKWAY  
MARIETTA, GA 30008-4012

*Bids will be opened at 2:00 P.M. in the Cobb County Purchasing Department, 1772 County Services Parkway, 2<sup>nd</sup> Floor, Conference/Bid Room, Marietta, GA 30008.*

Thank you in advance for your cooperation.

## **SEALED BID LABEL**

### **SEALED BID ENCLOSED**

DELIVER TO:  
COBB COUNTY PURCHASING  
1772 County Services Parkway  
Marietta, GA 30008-4012

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**SEALED BID # 09-5437 DATE: August 27, 2009**

**BIDS MUST BE RECEIVED BEFORE 12:00 NOON**

**DESCRIPTION:**

**Purchase and Installation of Audiovisual System**

**PLEASE ATTACH LABEL TO OUTSIDE OF BID PACKAGE**



*Cobb County...Expect the Best!*

**INVITATION TO BID**

**SEALED BID # 09 – 5437  
PURCHASE AND INSTALLATION OF AUDIOVISUAL SYSTEM  
COBB COUNTY PROPERTY MANAGEMENT DEPARTMENT**

**BID OPENING DATE: AUGUST 27, 2009**

**PRE-PROPOSAL CONFERENCE: AUGUST 10, 2009 @ 10:00 A.M. (E.S.T.)  
COBB COUNTY PURCHASING DEPARTMENT  
1772 COUNTY SERVICES PARKWAY  
MARIETTA, GEORGIA 30008**

**BIDS ARE RECEIVED IN THE  
COBB COUNTY PURCHASING DEPARTMENT  
1772 COUNTY SERVICES PARKWAY  
MARIETTA, GEORGIA 30008  
BEFORE 12:00 (NOON) BY THE BID OPENING DATE**

**BIDS WILL BE OPENED IN THE COBB COUNTY PURCHASING DEPARTMENT  
BID/MEETING ROOM AT 2:00 P.M.**

**VENDORS ARE REQUIRED TO SUBMIT THE ORIGINAL AND 1 COPY OF BID  
(UNLESS OTHERWISE SPECIFIED IN BID SPECIFICATIONS)**

**N.I.G.P. COMMODITY CODE: 88011**

NAME: \_\_\_\_\_

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

\_\_\_\_\_

REPRESENTATIVE: \_\_\_\_\_

PHONE: \_\_\_\_\_ FAX: \_\_\_\_\_

E-MAIL \_\_\_\_\_

**NOTE: The Cobb County Purchasing Department will not be responsible for the accuracy or completeness of the content of any Cobb County Invitation to Bid or Request for Proposal or subsequent addenda thereto received from a source other than the Cobb County Purchasing Department.**



*Cobb County...Expect the Best!*

**"STATEMENT OF NO BID"**

COBB COUNTY PURCHASING DEPARTMENT  
1772 COUNTY SERVICES PARKWAY  
MARIETTA, GA 30008

TO ALL PROSPECTIVE BIDDERS:

Because of the many requests to be placed on our vendors' list, we are continuously updating the list. While we want to include all bona fide vendors, we do not want to mail bids to those vendors who may no longer be interested in participating in our bidding process.

If you do not choose to respond to the attached Invitation to Bid/Request for Proposal, please fill out the form below indicating whether or not you want to be retained on our current vendor list.

Vendors who do not respond in any way (by either submitting a bid or by returning this form) over a period of one year may be removed from the current vendor list.

**Vendors who do not wish to bid often return the entire bid package, sometimes at considerable postage expense. Returning the entire bid package is not necessary. Simply return this form.**

Thank you for your cooperation.  
Cobb County Purchasing Department

**"STATEMENT OF NO BID"  
SEALED BID NUMBER 09-5437  
PURCHASE AND INSTALLATION OF AUDIOVISUAL SYSTEM**

If you do not wish to respond to the attached Invitation to Bid/Request for Proposal, please complete this form and mail/fax to: **Cobb County Purchasing Department, Attention: Sealed Bid Department, 1772 County Services Parkway, Marietta, GA. Fax # 770-528-1154**

I do not wish to submit a bid/proposal on this solicitation.

**I wish to be retained on the vendor list for this commodity or service: Yes\_\_\_\_\_ No \_\_\_\_\_**

Please PRINT the following:

\_\_\_\_\_  
Company

\_\_\_\_\_  
Representative

You are invited to list reasons for your decision not to bid: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**INVITATION TO BID  
PURCHASE AND INSTALLATION OF AUDIOVISUAL SYSTEM FOR  
COBB COUNTY SUPERIOR COURTHOUSE  
FOR THE COBB COUNTY PROPERTY MANAGEMENT DEPARTMENT**

**GENERAL INSTRUCTIONS FOR BIDDERS, TERMS AND CONDITIONS**

**I. PREPARATION OF BIDS**

Each bidder shall examine the drawings, specifications, schedule and all instructions. Failure to do so will be at the bidder's risk, as the bidder will be held accountable for their bid response.

Each bidder shall furnish all information required by the bid form or document. Each bidder shall sign the bid and print or type his or her name on the schedule. The person signing the bid must initial erasures or other changes. An authorized agent of the company must sign bids.

Due to the large number of vendors listed in certain categories of the Cobb County vendor's list, not all vendors will necessarily be sent an Invitation to Bid each time one is issued. Invitations to Bid issued by Cobb County are advertised on Cobb County TV23, the Cobb County Internet site <http://www.cobbcounty.org> and every Friday in the Marietta Daily Journal.

**II. DELIVERY**

Each bidder should state the time of proposed delivery of goods or services. Words such as "immediate", "as soon as possible", etc. shall not be used. The known earliest date or the minimum number of calendar days required after receipt of order (delivery A.R.O.) shall be stated (if calendar days are used, include Saturday, Sunday and holidays in the number).

**III. EXPLANATION TO BIDDERS**

Any explanation desired by a bidder regarding the meaning or interpretation of the invitation for bids, drawings, specifications, etc. must be received seven (7) working days prior to bid opening in order for a reply to reach all bidders before the close of the bid. Any information given to a prospective bidder concerning an invitation to bid will be furnished to all prospective bidders as an addendum to the invitation if such information is necessary or if the lack of such information would be prejudicial to uninformed bidders.

The written bid documents supersede any verbal or written communication between parties. Receipt of addendum should be acknowledged in the bid. Although the Purchasing Division will take effort to send any addendum to known bidders, it is the bidder's ultimate responsibility to ensure that they have all applicable addenda prior to bid submittal. This may be accomplished via contact with the Purchasing Division prior to bid submittal.

#### **IV. Submission of Bids**

Bids shall be enclosed in sealed envelopes, addressed to the Cobb County Purchasing Department with the name of the bidder, the date and hour of opening and the invitation to bid number on the face of the envelope. Bids must be received in the Purchasing Department no later than the date and time (determined by the date/time stamp in the department) set forth in the Invitation to Bid. It is the sole responsibility of the bidder to ensure that his or her bid reaches the Purchasing Department. Telegraphic/faxed bids will not be considered. Any addenda should be enclosed in the sealed envelopes as well. The bids will be publicly opened and read at the time and place set forth in the Invitation to Bid.

Samples of items, when required, must be submitted within the time specified and, unless otherwise specified by the County, at no expense to the County. Unless otherwise specified, samples will be returned at the bidder's request and expense if items are not destroyed by testing. Items offered must meet required specifications and must be of a quality, which will adequately serve the use and purpose for which intended.

Full identification of each item bid upon, including brand name, model, catalog number, etc. must be furnished to identify exactly what the bidder is offering. The bidder must certify that items to be furnished are new and that the quality has not deteriorated so as to impair its usefulness.

If no items are bid on, the "Statement of No Bid" must be returned, with the envelope plainly marked "No Bid" including the bid number. Where more than one item is listed, any items not bid upon must be indicated "No Bid".

Unsigned bids will not be considered except in cases where bid is enclosed with other documents, which have been signed. The County will determine this.

Cobb County is exempt from federal excise tax and Georgia sales tax with regards to goods and services purchased directly by Cobb County. Suppliers and contractors are responsible for federal excise tax and sales tax, including any taxes for materials incorporated in county construction projects. Suppliers and contractors should contact the State of Georgia Sales Tax Division for additional information. Tax Exemption Certificates will be furnished upon request.

Information submitted by a bidder in the bidding process shall be subject to disclosure after the public opening in accordance with the Georgia Open Records Act. Each page of proprietary information must be identified. Entire bid may not be deemed proprietary.

**V. WITHDRAW BID DUE TO ERRORS**

The bidder shall give notice in writing of his claim of right to withdraw his bid without penalty due to an error within two (2) business days after the conclusion of the bid opening procedure. Bids may be withdrawn from consideration if the price was substantially lower than the other bids due solely to a mistake therein, provided the bid was submitted in good faith, and the mistake was a clerical mistake as opposed to a judgment mistake, and was actually due to an unintentional arithmetic error or an unintentional omission of a quantity of work, labor or material made directly in the compilation of the bid, which unintentional arithmetic or unintentional omission can be clearly shown by objective evidence drawn from inspection of original work papers, documents and materials used in the preparation of the bid sought to be withdrawn. The bidder's original work papers shall be the sole acceptable evidence of error and mistake if he elects to withdraw his bid. If a bid is withdrawn under the authority of this provision, the lowest remaining responsive bid shall be deemed to be low bid.

No bidder who is permitted to withdraw a bid shall, for compensation, supply any material or labor or perform any subcontract or other work agreement for the person or firm to whom the contract is awarded or otherwise benefit, directly or indirectly, from the performance of the project for which the withdrawn bid was submitted.

Supplier has up to forty-eight (48) hours to notify the Cobb County Purchasing Department of an obvious clerical error made in calculation of bid in order to withdraw a bid after bid opening. Withdrawal of bid for this reason must be done in writing within the forty-eight (48) hour period. Suppliers who fail to request the withdrawal of bid by the required forty-eight (48) hours shall automatically forfeit bid bond. Bid may not be withdrawn otherwise. Bid withdrawal is not automatically granted and will be allowed solely at the discretion of Cobb County.

**VI. TESTING AND INSPECTION**

Since tests may require several days for completion, the County reserves the right to use a portion of any supplies before the results of tests are determined. Cost of inspections and tests of any item, which fails to meet specifications, shall be borne by the bidder.

**VII. F.O.B. POINT**

Unless otherwise stated in the Invitation to Bid and any resulting contract, or unless qualified by the bidder, items shall be shipped F.O.B. Destination. The seller shall retain title for the risk of transportation, including the filing for loss or damages. The invoice covering the items is not payable until items are delivered and the contract of carriage has been completed. Unless the F.O.B. clause states otherwise, the seller assumes transportation and related charges either by payment or allowance.

#### **VIII. PATENT INDEMNITY**

The contractor guarantees to hold the County, its agents, officers, or employees harmless from liability of any nature or kind for use of any copyrighted or uncopyrighted composition, secret process, patented or unpatented invention, articles or appliances furnished or used in the performance of contract, for which the contractor is not the patentee, assignee or licensee.

#### **IX. DISCOUNTS**

Time payment discounts will be considered in arriving at net prices and in award of bids. Offers of discount for payment within ten (10) days following the end of the month are preferred.

#### **X. Insurance**

Insurance requirements. Contractor shall procure and maintain for the duration of the contract, insurance against claims for injuries to persons or damages to property that may arise from or in connection with performance of the Work hereunder by the Contractor, his agents, representatives, employees, or subcontractors.

##### **A. MINIMUM LIMITS OF INSURANCE**

Contractor shall maintain limits no less than:

1. General Liability: \$1,000,000 combined single limit per occurrence for comprehensive coverage including bodily injury, personal injury and property damage for premises/operations, products/completed operations, contractual liability, independent contractors, broad-from property damage, and underground, explosion and collapse hazard.
2. Automobile Liability: \$1,000,000 combined single limit per accident for bodily injury and property damage including all owned, hired, and non-owned.
3. Workers' Compensation and Employers Liability: Workers' Compensation limits as required by the Labor code of the State of Georgia and Employers Liability of \$100,000 per accident.
4. Umbrella Liability: \$5,000,000 combined single limits per occurrence.

5. Builders Risk Insurance, if applicable: All Risk coverage on any buildings, structure of work and material in an amount equal to 100 per cent of the value of the contract. Coverage is to cover Cobb County interest and Cobb County shall be named as Loss Payee.

#### B. DEDUCTIBLES AND SELF-INSURED RETENTION

Any deductibles or self-insurance retentions must be declared to and approved by the Owner. At the option of the Owner, either: The insurer shall reduce or eliminate such deductibles or self-insured retentions as respects the Owner, its officers officials, and employees; or the Contractor shall procure a bond guaranteeing payment of losses related to investigations, claim administration and defense expenses.

#### C. OTHER INSURANCE PROVISIONS

##### 1. General Liability, Automobile Liability, and Umbrella Liability Coverages

The Owner and its officers, officials, employees and volunteers are to be covered as additional insureds as respects: liability arising out of activities performed by or on behalf of the Contractor.

Any failure to comply with reporting provisions of the policies shall not affect coverage provided to the Owner and its officers, officials, employees or volunteers.

The Contractor is responsible for insuring its own property and equipment.

2. Workers' Compensation and Employers Liability Coverage. The insurer shall agree to waive all rights of subrogation against the Owner and its officers, officials, employees and volunteers for losses arising from the work performed by the Contractor for the Owner.

3. All Coverages: Each insurance policy required by this clause shall be endorsed to state that coverage shall not be changed, cancelled, suspended, terminated or non-renewed except after sixty (60) days prior written notice by certified mail, return receipt requested, has been given to Cobb County of said change of coverage, cancellation, suspension, termination / or non-renewal.

#### D. ACCEPTABILITY.

Insurance is to be placed with insurers with an A.M.Best's rating of no less than A: VII, or otherwise acceptable to the Owner.

#### E. VERIFICATION OF COVERAGE.

Contractor shall furnish the Owner with certificates of insurance and with original endorsements effecting coverage required by this clause. These certificates and endorsements for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf. The certificates and endorsements are to be received and approved by the Owner before any work commences. The Owner reserves the right to require complete, certified copies of all required insurance policies at any time.

#### F. SUBCONTRACTORS

Subcontractor means one not in the employment of the Contractor who is performing all or part of the services under this Agreement under a separate contract with the Contractor.

Contractor shall include all subcontractors as insured under its insurance or shall ensure that subcontractors have met the insurance requirements of this agreement. Owner may request evidence of subcontractor's insurance.

Contractor is responsible for having all subcontractors comply with all terms and conditions of the Invitation to Bid.

#### G. WAIVER OF SUBROGATION

Vendor shall require all insurance policies in any way related to the work and secured and maintained by Vendor to include clauses stating each underwriter shall waive all rights of recovery, under subrogation or otherwise, against Customer. Vendor shall require of subcontractors, by appropriate written agreements, similar waivers each in favor of all parties enumerated in this section.

### **XI. AWARD**

Award will be made to the lowest responsive and responsible bidder. Conditional bids are not acceptable. The quality of articles to be supplied, their conformity with the specifications, their suitability to the requirements of the County, and the delivery terms will be taken into consideration in making the award. The County may make such investigations as it deems necessary to determine the ability of the bidder to perform, and the bidder shall furnish to the County all such information and data for this purpose as the County may request. The County reserves the right to reject any bid if the evidence submitted by, or investigation of such bidder fails to satisfy the County that such bidder is properly qualified to carry out the obligations of the contract. The County reserves the right to reject or accept any or all bids and to waive technicalities, informalities, and minor irregularities in bids received.

The County reserves the right to purchase the goods or services described herein from other sources. The Bidder does not have the exclusive right to fill all of the County's requirements for the goods or services awarded nor will the County be obligated to purchase the estimated annual quantity or any quantity contained in the bid document.

The County reserves the right to make an award as deemed in its best interest, which may include awarding a bid to a single bidder or multiple bidders; or to award the whole bid, only part of the bid, or none of the bid to single or multiple bidders, based on its sole discretion of its best interest. In case of tie bid, the award will be made as follows:

1. The bid will be awarded to the in-county vendor.
2. The bid will be awarded to the in-state vendor.
3. The bid will be awarded to the vendor with the lesser total dollar volume.

The County reserves the right to award by line item to more than one vendor. The County reserves the right to negotiate a lower price than the bid award price on any line item with the successful vendor, should the quantity required significantly exceed those on the Invitation to Bid. If the County is unable to negotiate an acceptable price, it reserves the right to rebid the item(s) involved. If after the award of the bid there is a decrease in the price of a product from the manufacturer, or a rebate, the successful bidder will pass that price decrease and/or rebate onto the County.

Bids are available for public inspection within 24 hours after bid opening, by appointment only.

## **XII. DELIVERY FAILURES**

Failure of a contractor to deliver within the time specified or within reasonable time as interpreted by the Purchasing Director, or failure to make replacement of rejected articles/services when so requested, immediately or as directed by the Purchasing Director, shall constitute authority for the Purchasing Director to purchase in the open market articles/services of comparable grade to replace the articles/services rejected or not delivered. On all such purchases, the contractor shall reimburse the County within a reasonable time specified by the Purchasing Director for any expense incurred in excess of contract prices, or the County shall have the right to deduct such amount from monies owed the defaulting contractor. Alternatively, the County may penalize the contractor one percent (1%) per day for a period of up to ten (10) days for each day that delivery or replacement is late. Should public necessity demand it, the County reserves the right to use or consume articles delivered which are substandard in quality, subject to an adjustment in price to be determined by the Purchasing Director.

## **XIII. COUNTY FURNISHED PROPERTY**

No material, labor or facilities will be furnished by the County unless so provided in the invitation to bid.

#### **XIV. REJECT AND WITHDRAW BIDS**

Failure to observe any of the instructions or conditions in this invitation to bid may constitute grounds for rejection of bid.

#### **XV. CONTRACT**

Each bid is received with the understanding that the acceptance in writing by the County of the offer to furnish any or all commodities or services described therein shall constitute a contract between the bidder and the County which shall bind the bidder on his part to furnish and deliver the articles quoted at the prices stated in accordance with the conditions of said accepted bid. The County, on its part, may order from such contractor, except for cause beyond reasonable control, and to pay for, at the agreed prices, all articles specified and delivered. Payment terms are net thirty (30) days after receipt of invoice.

The Price and all unit prices shown shall be deemed to include all costs of Contractor's performance of the Work as set forth in the Bid Documents, including, but not limited to, the costs of labor, supervision, travel, services, materials, equipment, tools, scaffolds, hoisting, transportation, storage, insurance and taxes.

Upon receipt of a bid package, containing a Cobb County "Sample Contract" as part of the requirements, it is understood that the bidder has reviewed the documents with the understanding that Cobb County requires all agreements between the parties must be entered into via this document. If any exceptions are taken to any part, each must be stated in detail and submitted as part of the bid. If no exceptions are stated, it is assumed that the bidder fully agrees to the provisions contained in the "Sample Contract" in its entirety.

When the contractor has performed in accordance with the provisions of this agreement, Cobb County shall pay the contractor, within thirty (30) days of receipt of any payment request based upon work completed or service provided pursuant to the contract, the sum so requested, less the retainage stated in this agreement, if any.

#### **XVI. NON-COLLUSION**

By submission of a bid, the vendor certifies, under penalty of perjury, that to the best of its knowledge and belief:

- (a) The prices in the proposal have been arrived at independently without collusion, consultation, communications, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other vendor or with any competitor.

- (b) Unless otherwise required by law, the prices which have been quoted in the proposal have not been knowingly disclosed by the vendor prior to opening, directly or indirectly, to any other vendor or to any competitor.
- (c) No attempt has been made, or will be made, by the vendor to induce any other person, partnership or corporation to submit or not to submit a proposal for the purpose of restricting competition.

Collusions and fraud in bid preparation shall be reported to the State of Georgia Attorney General and the United States Justice Department.

## **XVII. CONFLICT OF INTEREST, ETC.**

By submission of a bid, the responding firm certifies, under penalty of perjury, that to the best of its knowledge and belief:

1. No circumstances exist which cause a Conflict of Interest in performing the services required by this ITB, and
2. That no employee of the County, nor any member thereof, not any public agency or official affected by this ITB, has any pecuniary interest in the business of the responding firm or his sub-consultant(s) has any interest that would conflict in any manner or degree with the performance related to this ITB.

By submission of a bid, the vendor certifies under penalty of perjury, that to the best of its knowledge and belief:

- (a) The prices in the bid have been arrived at independently without collusion, consultation, communications, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other vendor or with any competitor.
- (b) Unless other wise required by law, the prices which have been quoted in the bid have not knowingly been disclosed by the vendor prior to opening, directly or indirectly, to any other vendor or competitor.
- (c) No attempt has been made, or will be made, by the vendor to induce any other person, partnership or cooperation to submit or not to submit a bid for the purpose of restricting competition.

For any breach or violation of this provision, the County shall have the right to terminate any related contract or agreement without liability and at its discretion to deduct from the price, or otherwise recover, the full amount of such fee, commission, percentage, gift, payment or consideration.

The successful responding firm shall require each of its sub-consultant(s) to sign a statement certifying to and agreeing to comply with the terms of the Sub-sections above.

## **XIII. DEFAULT**

The contract may be cancelled or annulled by the Purchasing Director in whole or in part by written notice of default to the contractor upon non-performance or violation of contract terms. An award may be made to the next low responsive and responsible bidder, or articles specified may be purchased on the open market similar to those so terminated. In either event, the defaulting contractor (or his surety) shall be liable to the County for costs to the County in excess of the defaulted contract prices; provided, however, that the contractor shall continue the performance of this contract to the extent not terminated under the provisions of this clause. Failure of the contractor to deliver materials or services within the time stipulated on his bid, unless extending in writing by the Purchasing Director, shall constitute contract default.

#### **XIX. DISPUTES**

Except as otherwise provided in the contract documents, any dispute concerning a question of fact arising under the contract which is not disposed of shall be decided after a hearing by the Purchasing Director, who shall reduce his/her decision to writing and mail or otherwise furnish a copy thereof to the contractor. The decision of the Purchasing Director shall be final and binding; however, the contractor shall have the right to appeal said decision to a court of competent jurisdiction.

#### **XX. SUBSTITUTIONS**

Bidders offering and quoting on substitutions or who are deviating from the attached specifications shall list such deviations on a separate sheet to be submitted with their bid. The absence of such a substitution list shall indicate that the bidder has taken no exception to the specifications contained herein.

#### **XXI. INELIGIBLE BIDDERS**

The County may choose not to accept the bid of a bidder who is in default on the payment of taxes, licenses, or other monies due to the County. Failure to respond three (3) consecutive times for any given commodity/service may result in removal from the supplier list under that commodity/service.

#### **XXII. ALTERATIONS OF DOCUMENTS**

Alterations of County documents are strictly prohibited and will result in automatic disqualification of the firm's solicitation response. If there are "exceptions" or comments to any of the solicitation requirements or other language, then the firm may make notes to those areas, but may not materially alter any document language.

### **XXIII. TERMINATION FOR CONVENIENCE**

The County, by written notice, may terminate this contract, in whole or in part, when it is in the County's interest. If this contract is terminated, the County shall be liable only for goods or services delivered or accepted. The County Notice of Termination may provide the contractor thirty (30) days prior notice before it becomes effective. However, at the County's sole option a termination of convenience may be effective immediately and may apply to delivery orders (if applicable) or to the contract in whole.

### **XXIV. INTER-GOVERNMENTAL AGREEMENT**

Other cities and Authorities located in Cobb County will be allowed to purchase identical items at the same price and upon the same terms and conditions, pursuant to the Intergovernmental Cooperative Purchasing Agreements entered into between the BOC and Cobb County Governmental entities listed under the Intergovernmental Cooperative Purchasing Program. These entities include the Cobb County Board of Education and Cities of Acworth, Austell, Kennesaw, Smyrna, Marietta, and Powder Springs and the Cobb County-Marietta Water Authority and the Cobb-Marietta Coliseum and Exhibit Hall Authority.

### **XXV. INDEMNIFICATION AND HOLD HARMLESS**

By submission of a bid, the selected responding firm agrees to the fullest extent permitted by law to indemnify Cobb County and protect, defend, indemnify and hold harmless Cobb County, its officers, officials, employees and volunteers from and against all claims, actions, liabilities, losses (including economic losses), or costs arising out of any actual or alleged a) bodily injury, sickness, disease, or death; or injury to or destruction of tangible property including the loss of use resulting there from; or any other damage or loss arising out of or resulting claims resulting in whole or part from any actual or alleged act or omission of the responding firm, sub-consultant, anyone directly or indirectly employed by any firm or sub-consultant; or anyone for whose acts any of them may be liable in the performance of work; b) violation of any law, statute, ordinance, governmental administrative order, rule, regulation, or infringements of patent rights or other intellectual property rights by the responding firm in the performance of work; or c) liens, claims or actions made by the responding firm or other party performing the work, as approved by Cobb County. The indemnification obligations herein shall not be limited by any limitation on the amount, type of damages, compensation, or benefits payable by or for the responding firm or its sub-consultant(s), as approved by the County, under workers' compensation acts, disability benefit acts, other employee benefit acts, or any statutory bar or insurance.

## XXVI. SPECIAL TERMS AND CONDITIONS

Should these General Terms and Conditions be in conflict with any attached Special Terms and Conditions, the Special Terms and Conditions will control.

## XXVII. Disadvantaged Business Enterprises (DBE): The following provisions should be carefully read to determine applicability to your business.

Cobb County Government encourages the participation of all businesses in offering their services and/or products. The Cobb County Government has the goal to fairly and competitively procure the best product at the most reasonable cost.

A Disadvantaged Business Enterprise (DBE) is generally defined as a Female, Black American, Hispanic American and any other minority owned business. The Federal Government has long had program in place to ensure participation of DBE vendors and suppliers. The State of Georgia has established a similar program whereby DBE firms are defined, certified and made known. This effort is managed by the Georgia Department of Transportation (GDOT). More information can be obtained from GDOT web site:

<http://www.dot.state.ga.us/eo-div/index.shtml>

The Cobb County Government addresses DBE business participation (frequency and dollar value) in the following ways:

Cobb County wishes to identify all DBE participation; both at the contractor and sub-contractor levels in the following ways.

DBE businesses are requested to identify such status at the time they register as a vendor.

DBE businesses are requested to identify themselves at the time they propose to do business. Please complete **EXHIBIT B** if applicable and return with bid submittal.

All businesses will receive with each Purchase Order an instruction sheet for use of the furnished *Cobb County Government DBE Participation Report*, **EXHIBIT C**. Businesses are requested to complete this report and submit it with each invoice for the time period billed.

2. Cobb County has established a Disadvantaged Business Enterprise Plan in accordance with the regulations of the U.S. Department of Transportation (U. S. Department of Transportation (USDOT), 49 CFR Part 26.) The Cobb County Department of Transportation is the lead agency for implementing the USDOT DBE Program for the County.

*The Plan applies only to projects which are clearly indicated by the County.*

## **XVIII. AMERICANS WITH DISABILITIES ACT**

Cobb County requires all contractors to comply with applicable sections of the Americans With Disabilities Act (ADA) as an equal opportunity employer. In compliance with the Americans With Disabilities Act (ADA), Cobb County provides reasonable accommodations to permit a qualified applicant with a disability to enjoy the privileges of employment equal to those employees without disabilities. Disabled individuals must satisfy job requirements for education background, employment experience, and must be able to perform those tasks that are essential to the job with or without reasonable accommodations.

**XXIX. EVIDENCE OF COMPLIANCE WITH GEORGIA SECURITY & IMMIGRATION COMPLIANCE ACT**

The County and Contractor agree that compliance with the requirements of O.C.G.A. Sec. 13-10-91 and Rule 300-10-1-.02 of the Rules of the Georgia Department of Labor are conditions of this Agreement for the physical performance of services.

\_\_\_\_\_  
Contractor Name

The Contractor further agrees that its compliance with the requirements of O.C.G.A. Sec. 13-10-91 and DOL Rule 300-10-1-.02 is attested to on the executed Contractor Affidavit and Agreement attached hereto as EXHIBIT A.

If employing or contracting with any subcontractor(s) in connection with this Agreement, Contractor further agrees:

To secure from the subcontractor(s) such subcontractor(s)' indication of the employee-number category applicable to the subcontractor(s); and

To secure from the subcontractor(s) an affidavit attesting to the subcontractor's compliance with O.C.G.A. Sec. 13-10-91 and DOL Rule 300-10-1-.02; such affidavit being in the form attached hereto and referenced as EXHIBIT A-1; and

To submit such subcontractor affidavit(s) to the County when the subcontractor(s) is retained, but in any event, prior to the commencement of work by the subcontractor(s).

The failure of Contractor to supply the affidavit of compliance at the time of execution of this Agreement and/or the failure of Contractor to continue to satisfy the obligations of O.C.G.A. Sec. 13-10-91 and DOL Rule 300-10-1-.02 as set forth in this Agreement during the term of the Agreement shall constitute a material breach of the contract. Upon notice of such breach, Contractor shall be entitled to cure the breach within ten (10) days, upon providing satisfactory evidence of compliance with the terms of this Agreement and State law. Should the breach not be cured, the County shall be entitled to all available remedies, including termination of the contract and damages.

**THIS PAGE MUST BE SUBMITTED WITH BID PACKAGE**

*SEE AFFIDAVITS ON FOLLOWING PAGES*

**CONTRACTOR AFFIDAVIT & AGREEMENT  
EXHIBIT A**

By executing this affidavit, the undersigned contractor verifies its compliance with O.C.G.A. § 13-10-91, stating affirmatively that the individual, firm or corporation which is contracting with Cobb County, Georgia, has registered and is participating in a federal work authorization program\* [an electronic verification of work authorization program operated by the U.S. Department of Homeland Security or any equivalent federal work authorization program operated by the U.S. Department of Homeland Security to verify information of newly hired employees, pursuant to the Immigration Reform and Control Act of 1986 (IRCA), P.L. 99-603], in accordance with the applicability provisions and deadlines established in O.C.G.A. § 13-10-91.

The undersigned further agrees that should it employ or contract with any subcontractor(s) for the physical performance of services pursuant to the contract with Cobb County, Georgia, the contractor will secure from the subcontractor(s) verification of compliance with O.C.G.A. § 13-10-91 on the attached Subcontractor Affidavit. (EXHIBIT A-1). The contractor further agrees to maintain records of such compliance and shall provide a copy of each such verification to Cobb County, Georgia, at the time the subcontractor(s) is retained to perform such services.

BY: \_\_\_\_\_  
[Contractor Name]

Date: \_\_\_\_\_

\_\_\_\_\_  
Title

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Company Name

SUBSCRIBED AND SWORN  
BEFORE ME ON THIS THE  
\_\_\_ DAY OF \_\_\_\_\_, 200\_\_

\_\_\_\_\_  
Notary Public  
My Commission Expires:

*\*The applicable federal work authorization program as of the effective date of the statute is the Basic Pilot program of the Systematic Alien Verification for Entitlements (SAVE) Program Office of U.S. Citizenship and Immigration Service (USCIS).*

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**SUBCONTRACTOR AFFIDAVIT  
EXHIBIT A-1**

By executing this affidavit, the undersigned subcontractor verifies its compliance with O.C.G.A. § 13-10-91, stating affirmatively that the individual, firm or corporation which is engaged in the physical performance of services on behalf of Cobb County, Georgia, has registered and is participating in a federal work authorization program\* [an electronic verification of work authorization program operated by the U.S. Department of Homeland Security or any equivalent federal work authorization program operated by the U.S. Department of Homeland Security to verify information of newly hired employees, pursuant to the Immigration Reform and Control Act of 1986 (IRCA)], in accordance with the applicability provisions and deadlines established in O.C.G.A. § 13-10-91.

BY: \_\_\_\_\_  
Authorized Officer or Agent  
[Contractor Name]

Date: \_\_\_\_\_

\_\_\_\_\_  
Title

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Company Name

SUBSCRIBED AND SWORN  
BEFORE ME ON THIS THE  
\_\_\_ DAY OF \_\_\_\_\_, 200\_

\_\_\_\_\_  
Notary Public  
My Commission Expires:

\_\_\_\_\_  
*\*The applicable federal work authorization program as of the effective date of the statute is the Basic Pilot program of the Systematic Alien Verification for Entitlements (SAVE) Program Office of U.S. Citizenship and Immigration Service (USCIS).*

**EXHIBIT B**

**DISADVANTAGED BUSINESS ENTERPRISE (DBE) IDENTIFICATION  
FORM**

A Disadvantaged Business Enterprise (DBE) is generally defined as a Female, Black American, Hispanic American and any other minority owned business. If your firm is classified as a Disadvantaged Business Enterprise (DBE), please complete this form and submit with bid response or send to:

Cobb County Purchasing Department  
Attn: Mr. Rick Brun, Purchasing Director  
1772 County Services Parkway  
Marietta, GA 30008  
Fax: 770-528-1154  
Email: [purchasing@cobbcounty.org](mailto:purchasing@cobbcounty.org)

Name of Firm: \_\_\_\_\_

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

Telephone: \_\_\_\_\_

Fax: \_\_\_\_\_

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

MBE Certification Number: \_\_\_\_\_

Name of Organization Certification \_\_\_\_\_

**This information is acquired for informational purposes only and will  
have no bearing on the award unless otherwise stated**

**Instructions for Completing Exhibit C**  
**Disadvantaged Business Enterprise (DBE)**  
**Participation Report**

All Cobb County Government contractors or vendors are requested to complete a report descriptive of any DBE subcontractor involvement in work for which the government is making payment. If otherwise specified in an RFP or contract, additional reporting forms may be required as well.

The objective of this request is to assist in the identification of Disadvantaged Business Enterprise (DBE) business participation with the Cobb County Government and to quantify that participation.

The Cobb County Government does not administer a DBE Certification Program. The principle certification agency for the State of Georgia is the Georgia Department of Transportation. As a Contractor/Vendor you are not responsible for verification of any DBE Certification information of your subcontractor.

\*\*\* **Instructions** \*\*\*

1. Contractor/Vendor is furnished the one-page *DBE Participation Report* form with each Cobb County Government-issued Purchase Order.
2. Contractor/Vendor completes this form for each billing period and attaches it to the invoice to then be sent to the Cobb County Government.
3. Upon receipt of a Contractor/Vendor invoice, County staff should simply separate the completed DBE form and transmit to:

Cobb County Purchasing Department,  
Attn.: DBE Report

A Disadvantaged Business Enterprise (DBE) is a firm that is under the control of someone in an ownership position (at least 51%) that:

1. Has membership in one or more of the following groups: Female, Black American, Hispanic American, Native American, Subcontinent Asian American and Asian-Pacific America. There may be other groups that may be eligible to be certified as DBE;
2. Is a U.S. citizen or lawfully admitted permanent resident of the U.S.;
3. Has a personal net worth which does not exceed \$750,000; and,
4. The business meets the Small Business Administration's size standard for a small business and does not exceed \$17.42 million in gross annual receipts;
5. The business is organized as a for-profit business.
6. The business may also be DBE eligible as a certified U.S. Small Business Administration 8(a) program.

**EXHIBIT C**  
**Cobb County Government Disadvantaged**  
**Business Enterprise Participation Report**

→ PLEASE keep this blank form to make copies for actual use as needed. Also, please print or type in the form. ←

Submitted by: \_\_\_\_\_ Period Invoiced: \_\_\_\_\_  
**Name of Prime Contractor/Vendor** \_\_\_\_\_ **From/To:** \_\_\_\_\_  
 Cobb County Project Name: \_\_\_\_\_ Bid or P.O. Number: \_\_\_\_\_  
 Cobb County Department or Agency receiving service or product: \_\_\_\_\_  
 Description of Purchased Service/Product: \_\_\_\_\_  
 Full Contracted Amount: \$ \_\_\_\_\_ Payment amount requested at this time: \$ \_\_\_\_\_

1. Are YOU, the Prime Contractor or Vendor a DBE business? YES \_\_\_\_\_ NO \_\_\_\_\_
2. Please provide the following information for each subcontractor participating during this reporting period:

Subcontractor Business Name	Type Service or Product Supplied	Subcontractor Business/Contact Tel. Number	Actual Dollar Value of Subcontractor Participation this Reporting Period
			\$
			\$
			\$
			\$
			\$
			\$
			\$

Submitted by: \_\_\_\_\_  
 Printed Name

Title or position: \_\_\_\_\_

Signature of Authorized Representative

Date Completed: \_\_\_\_\_

**County Departments: Please send this completed form to the Cobb County Purchasing Department, ATTN: DBE Report**

## **SPECIAL TERMS AND CONDITIONS**

The Cobb County Property Management Department is requesting bids from vendors for the Purchase and Installation of Audiovisual Equipment for the Superior Courthouse.

Bids are due to the Cobb County Purchasing Department located at 1772 County Services Parkway, Marietta, GA. 30008, before 12:00 (Noon) **on August 27, 2009**. Late bids will not be accepted.

### **I. Inquiries Prior to Bidding:**

Bidders having questions with regard to the project or Bid Documents shall present these questions in writing for clarification by **5:00 pm on Tuesday, August 18, 2009** to:

**Cobb County Purchasing  
1772 County Services Parkway  
Marietta, GA 30008  
Fax: 770-528-1154  
Email: [purchasing@cobbcounty.org](mailto:purchasing@cobbcounty.org)**

Responses to all questions will be issued in the form of an addendum. Bidders shall acknowledge receipt of addenda by inserting their number and date in the Bid Form. Failure to do so may subject bidder to disqualification. Addenda form part of the Contract Documents. In the event of a conflict between addendum items and those in other parts of the Contract Documents, addenda shall take precedence and govern in the order of the latest addendum.

### **II. Pre-Bid Conference:**

**A pre-bid meeting will be held at the Cobb County Purchasing Department, Conference Room, located at 1772 County Services Pkwy, Marietta, GA. on August 10, 2009 at 10:00 a.m.** for the purpose of answering questions of prospective bidders. It is to the benefit of the bidders to attend. Information may be distributed.

## AUDIOVISUAL SYSTEMS

### PART 1 - GENERAL

#### 1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

#### 1.2 DESCRIPTION OF WORK

- A. The work of this Section consists of the provision of all plant, materials, labor and equipment and the like necessary and/or required for the complete execution of all audiovisual equipment and related work for this project as required by the schedules, keynotes and drawings, including, but not limited to the following:
1. Unless otherwise specified, supply only new equipment, parts and material, and protect all equipment from construction dust and debris until final acceptance. Operate only as required for testing as part of installation procedure. Provision of all manufactured components, installation, wiring, and testing is the responsibility of a single contractor.
  2. The system drawings indicate the general layout of the various items of equipment and their functional relationships. However, layout of equipment, accessories, and conduit systems are diagrammatic unless specifically detailed and do not necessarily indicate every item required for a complete installation. Provide any incidental equipment needed in order to result in a complete and operable system even if not specified or shown on drawings without claim for additional payment.
  3. Quantities of all major installed and all portable equipment, including any add-or deduct- alternates, are indicated on the system and electrical drawings. Quantities of portable equipment are indicated in schedules contained in the drawings or specifications. Quantities of installed equipment are determined by examining the functional diagrams, plans, and riser diagrams.
  4. Refer to audiovisual conduit drawings for receptacle backbox location and quantity information. Refer to architectural reflected ceiling plans for exact location of ceiling-mounted devices.
  5. Verify correctness of parts lists and equipment model numbers and conformance of each component with manufacturer's specifications.
  6. Obtain all permits necessary for the execution of the work. Comply with all applicable local codes and regulations.
  7. Supply and install miscellaneous steel, such as Unistrut, above finished ceiling for mounting each video projector.
  8. Install Owner Supplied Computer identified on drawings.
  9. All primary conduit and wireways as shown on the AV drawings are included in the General Contractor's scope of work and are not to be provided in the Audiovisual Contract. Supply and install all miscellaneous conduit and wireways to the extent not included in Division 16 in order to provide a complete and operable system.

10. Millwork: Schematic details of the lectern and front wall console are included for the purpose of facilitating coordination of the installation of audiovisual components in these millwork items to be provided by the General Contractor.
11. Coordinate conduit, power, and grounding requirements with the electrical subcontractor for the building project. All power wiring required as part of this work is to be performed by licensed, union electricians. Contractor may subcontract such work to a qualified electrical contractor.

**B. Functional Requirements of Systems:**

1. Large Courtroom Second Floor:
  - a. The audio system shall incorporate the following features:
  - b. System shall be controlled by the area AMX control system.
  - c. System input - outputs shall include:

<b>Audio Inputs:</b>	<b>Audio Outputs:</b>
Judge Mic	Jury Overhead Speakers
Sidebar Mic	Gallery Overhead Speakers
Prosecution Mic 1	Judges Bench Overhead Speakers
Defense Mic 1	Court Reporter Headphones
Podium Mic	Jury Deliberation
Jury Mic (centrally located)	IR Assisted Listening System
Witness Mic	Courtroom Press Feed
Interpreter Mic	Courtroom Future
Clerk of Courts Mic	
Staff Attorney Mic	
Gallery Mic	
DVD	
PC/Line Input 1	
PC\Line Input 2	
<b>Video Inputs:</b>	<b>Video Outputs:</b>
VGA Podium	Judge
DVD Podium	Prosecution
Document Camera Podium	Defense
VGA Aux	Podium
	Jury (centrally located)
	Primary Plasma Display
	Staff Attorney
	Clerk of Courts



DVD Podium	Prosecution
Document Camera Podium	Defense
VGA Aux	Podium
	Jury (centrally located)
	Primary Plasma Display
	Staff Attorney
	Clerk of Courts

- b. The system shall provide control features and functionality determined by the Court. The system architecture shall allow any input to be routed to any output of a similar type. The programming section of this document shall provide detail.
  - c. Dedicated UTP cable shall be provided per the drawing for planned future enhancement of the courtroom systems.
  - d. Building-wide control for area lighting shall be provided via RS232 serial Data output from the AMX control device. Lighting contractor shall provide required control protocols to the AV contractor upon request.
  - e. ADA assisted listening devices shall be provided via IR emitters and associated battery operated headsets.
  - f. A 65IN Plasma screen shall be mounted on an articulating wall arm allowing flexible placement for maximum visibility by jurors.
  - g. At all times, the court reporter shall have a live audio feed from the judge's mic.
  - h. Electronic News Gathering Tie Lines to be provided for connection to broadcast distribution point.
  - i. Two additional Cat5 cables are to be pulled from the AV rack to each floor box for future enhancement.
  - j. 120V AC power shall be separated from the line level audio and video lines.
3. Jury Holding Area AV System
- a. System shall provide 3 articulating wall arm mounted 65IN Plasma displays.
  - b. System shall be controlled via wall mounted interface.
  - c. System shall be capable of displaying 2 simultaneous video sources.
  - d. System audio shall include automatic ducking and a paging system capable of reproducing a minimum of 4 audio sources.
  - e. Paging shall be provided to the immediate area of the jury holding room, as indicated on the system drawings.
  - f. System interconnect and functionality to be determined by the owner prior to installation.
4. Video Arraignment / Jury Presentation AV Cart
- a. System shall provide Standard Definition Video conferencing capabilities
  - b. System shall provide ISDN functionality

- c. System shall be professionally assembled with professional wire management techniques implemented.
- 5. Media Feed System to Press Room
  - a. An analog audio and digital video (RGBHV) signal shall be provided from each courtroom to the second floor press room. CAT6 cable and broadcast quality transmitter/ receiver units to be utilized throughout.
  - b. Audio video signal outputs shall be provided to each of 4 patch points in the press room.
  - c. Each patch point shall have the ability to select a feed from the tie line panels (wall mounted interconnect points) at the rear of each courtroom.
    - 1) The system router shall require express "permission" from the specific courtroom resident touch panel to allow signal to be fed to the press room patch points. Specifically stated: The judge of each courtroom must authorize an audio video feed to be recorded at the press point, thereby giving the judge discretionary control over what may be distributed to the media feeds.
- 6. Low Level Audio Distribution to AV monitoring system (by others)
  - a. A low level audio signal shall be provided from each courtroom for integration with the AV monitoring system provided by the security system contactor. This signal shall be provided as an output at the AV rack location for each courtroom.

### **1.3 AUDIO AND VIDEO PROCESSING DEVICES, LOCAL COMPUTER AND VIDEO DISPLAY DEVICE.**

#### **A. Definitions:**

1. XLR Connectors and Receptacles: Connectors and receptacles conforming to proposed E.I.A. Standard RS-297-B referred to as "XLR"-type connectors and receptacles.
2. Units and Symbols: Metric units according to the System of International Units (SI) are used as well as other common units and symbols.
3. Octave and 1/3-Octave Bands: Centered on ANSI preferred frequencies.
4. Sound Level Meter and Filter Set: Calibrated ANSI Type 1 meter with ANSI S1.11-1966 1/3 octave band filters.
5. Pink Noise: Constant energy in constant percentage bands, random or quasi-random noise.
6. Loudspeaker Power Rating: Based on pink noise test signal with 6 dB peak-to-average ratio, bandwidth as stated.
7. Loudspeaker Coverage Pattern: Nominal angular coverage included at -6 dB points relative to axial response, bandwidth as stated.
8. DI: Axial directivity index.
9. Loudspeaker Sensitivity: Axial level in dB with 1 watt input at 1 meter distance.
10. Microphone Sensitivity: Level in dB re 1 milliwatt into rated impedance at 1000 Hz (or as otherwise stated) and 94 dB SPL. (10 dynes/cm<sup>2</sup> or 1 Pa).
11. SPL: Sound pressure level in dB re 0.00002 Pa (0.0002 microbar).
12. Power Amplifier Output Power Rating: Based on continuous average sine wave test signal. Load impedance and bandwidth as indicated.

13. Amplifiers and Signal Processors: Frequency Response, Distortion, and Hum and Noise re full rated output level.

#### **1.4 BID SUBMITTALS**

- A. Instructions to Bidders: To be considered, Bids must be made in accord with the Owner's Instructions to Bidders and this Article.
- B. Examinations: Carefully examine the contract documents and the construction site to obtain first-hand knowledge of existing conditions. Contractors will not be given extra payments for conditions that can be determined by examining documents or site and will not be relieved of any obligations with respect to bid.
- C. Questions: Submit all questions about the contract documents in writing. Replies requiring changes to the contract documents will be issued to all bidders as addenda and will become part of the Contract. Questions received less than 10 days before bid date cannot be answered in writing.
- D. Acceptable Products: Model numbers and manufacturers identified herein indicate a standard of quality and performance. Other products will be considered subject to approval of complete technical data, samples and results of independent testing of proposed equipment, submitted in accordance with Division 1 requirements and "Substitutions" section below.
- E. Substitutions: To obtain approval for substitutions and for items identified as "approved equal", submit written requests at least 10 days before bid date. Requests received after this time will not be considered. Requests shall clearly describe the product for which approval is asked, including all data necessary to demonstrate acceptability. If the product is acceptable, an Addendum may be issued to all bidders.
- F. Equipment Availability: Verify with manufacturers availability and cost of all equipment proposed, including equipment specified herein. No cost increases will be allowed for manufacturers' cost increases, or for substitutions required because of unavailability of proposed equipment.
- G. Performance Bond: The successful bidder will furnish a Performance Payment Bond and Labor and Material Bond, underwritten by a surety company approved by the Architect and Owner, for fulfillment of all provisions of the contract.
- H. Basis of Bids:
  - 1. Include a complete itemized list for each base-bid system indicating the manufacturer, model number, unit cost and total costs for all specified items. Itemization of miscellaneous equipment such as cable, switches, and receptacles is not required. Equipment listed in the bid submittal that is one of the acceptable products listed in the specification will be released for immediate order placement upon award of the contract, with no formal submittal process. Submissions for non-specified products may be included with the bid submittal for possible approval for order upon contract award.

2. Clearly indicate the total cost, including all expenses, for each individual system to allow the Owner to select any or all to be included in the contract. Itemization of miscellaneous equipment such as cable, switches, and receptacles is not required.
3. Organize each list with the information presented, in the order that it appears in this specification, in 6 columns from left to right:
  - a. Paragraph number as it appears in this specification.
  - b. Paragraph title as it appears in this specification.
  - c. Manufacturer and model number.
  - d. Quantity.
  - e. Unit Cost.
  - f. Extension (unit cost times quantity).
4. At the end of each list indicate the cost of all other items such as for miscellaneous equipment, engineering, installation labor, overhead, taxes and any other item that adds to the cost.
5. On a separate list indicate costs of specified Deduct-Alternates A through F with the information presented in the same manner as for the base-bid system.
6. Include a listing of any voluntary alternates proposed by the bidder as substitutions or additions to the specified systems.
7. Identify any sub-contractors and indicate the work they are to do.
8. Provide documentation of ability in installing similar systems. Furnish the names, addresses and telephone numbers of the System Designer, Architect, General Contractor and Owner on three projects similar in scope, which the Contractor has installed within the last 5 years.
9. Provide service contract costs for three years following initial service contract period.
10. Include certification of ownership and full familiarity with the operation of the following minimum test equipment. Provide a list of the manufacturer, model, and serial number for each item of test equipment required.
  - a. Sound level meter, 1/3 octave band real time audio analyzer and pink noise generator.
  - b. Multimeter.
  - c. Cable Tester (suggested: Sescom CT-1A).
  - d. Video waveform monitor, vectorscope, and signal generator.
  - e. Photometer with luminance and illuminance probes.
  - f. Multi-frequency computer RGB test pattern generator (suggested: Extron VTG-150, VTG-200, or VTG-300).
  - g. Dedicated Speech Intelligibility Meter that Measures Sound Pressure Level and Speech Intelligibility Index in CIS or STI

## **1.5 QUALITY ASSURANCE**

- A. Project Management: Maintain the same person in charge of work throughout installation.
- B. Contract Documents: Maintain a complete set of system drawings and specifications at the site at all times during installation.

- C. Fabrication and Installation: Fabricate all equipment racks and subassemblies. Make field connections of all audio, video and control wiring including microphone, line level, loudspeaker, video, and control system circuits to equipment, equipment racks and connection panels. Continuously supervise the installation and connections of cable and equipment.
- D. Contractor Qualifications: To be considered qualified for this work, the contracting firm must be experienced in the provision of audiovisual systems similar in complexity to those required for this project, and meet the following:
  - 1. The Contractor's primary business is the provision, fabrication and installation of professional audiovisual and related systems.
  - 2. The Contractor has been regularly engaged in the installation and service of professional audiovisual presentation systems for a period of at least five years.
  - 3. The Contractor is an authorized dealer for the major products furnished.
  - 4. The Contractor is an authorized dealer for the specified Audiovisual Control System and factory trained in the installation, maintenance and programming of such systems.
  - 5. At the request of the Architect demonstrate the following capabilities:
    - a. Adequate plant and equipment to complete the work.
    - b. Sufficient staff with appropriate technical experience to oversee and execute the work.
- E. Subcontractors: The Contractor may arrange for sub-contract field and special shop work to be done by others.
- F. Prime Contractors: Any other installer who intends to bid on this work as the Prime Contractor and does not meet the "Contractor Qualifications" described above shall employ the services of a single "Audiovisual Systems Contractor" who does meet these requirements. The Audiovisual System Contractor shall furnish and install the equipment. The Prime Contractor shall clearly identify the Audiovisual Systems Contractor and submit complete qualification information for the Audiovisual Systems Contractor in the Bid. Failure to do so may be cause for rejection of the Bid.

## **1.6 SUBSTITUTIONS**

- A. General: The Contractor has the burden of proving, at the Contractor's own cost and expense and to the satisfaction of the Architect, that the proposed product is similar and equal to the named product.
- B. Basis:
  - 1. Requests for acceptance of proposed equivalents made following the award of bid will be considered by the Architect only in the following cases:
    - a. The named products cannot be obtained by the Contractor because of strikes, lockouts, bankruptcies or discontinuance of manufacturer and the Contractor makes a written request to the Architect for consideration of the proposed equivalent.
    - b. The proposed equivalent, in the opinion of the Architect, is equal or superior to the named product and its use is to the advantage of the Owner.

2. A formal request must be made for the substitution, documenting fully the above reason. Include complete data on the proposed substitution substantiating compliance with the Contract Documents including:
    - a. Product identification and description, performance and test data, references and samples where applicable.
    - b. An itemized comparison of the proposed substitution with the products specified or named by Addenda, with data relating to Contract time schedule, design and artistic effect where applicable, and its relationship to separate contracts.
    - c. Accompany the request with an accurate installed cost data on the proposed substitution in comparison with the product specified.
- C. Consideration:
1. A request for substitution is a representation by the Contractor that:
    - a. The Contractor has personally investigated the proposed substitution and determined that it is equal or superior in all respects to that specified.
    - b. The Contractor will provide the same warranty for the substitution that would be for that specified.
    - c. The cost data presented are complete and include all related costs under this Contract, but exclude costs under separate contracts and exclude Architect's re-design costs, and that the Contractor waives all claims for additional costs related to the substitution which subsequently become apparent.
    - d. Indicate if there will be any cost impact on work by other trades.
    - e. The Contractor will coordinate the installation of the accepted substitute, making such changes as may be required for the Work to be complete in all respects.
  2. An accepted substitution will be documented by Change Order modifying the Specifications. The Contract Price will be changed only if the substitution results in cost savings to the Owner.

## **1.7 SUBMITTALS**

- A. Coordinate all submittals with requirements set forth in Section 01300.
- B. Shop Drawings and Product Data:
  1. The following is required for approval, prior to ordering product, fabrication and installation. Provide three (3) copies unless otherwise specified. Submit complete and at one time. Isolated items will not be considered for approval, except by prior authorization. Rejected items and items requiring correction must be resubmitted at one time, except by prior authorization.
  2. The diagrams and details included with these specifications, modified to reflect the stated requirements and to reflect the details of the system as awarded, and including all additional required information, may be used in preparing shop drawings. Drawings that are submitted without the necessary modifications will be rejected.
  3. All drawings shall be drawn on a computer-aided drafting (CAD) system.

- a. Bill of Materials and Catalog Data Sheets of all manufactured items. At the end of the Bill of Materials include Catalog Data Sheets (“cut” sheets) for all product arranged in the order listed in the specifications and in the Bill of Materials. Submit in bound form using a 3-ring, GBC or similar binding, and including a cover page identifying the project and submittal. Organize the Bill of Materials with the information presented in the order that it appears in this specification, in 6 columns from left to right:
    - 1) Paragraph number as it appears in this specification.
    - 2) Paragraph title as it appears in this specification.
    - 3) Manufacturer.
    - 4) Model number.
    - 5) Quantity.
    - 6) Comments (if any are needed).
  - b. Block diagrams indicating proposed connections of all equipment and indicating equipment types and model numbers.
  - c. Equipment/projection/control room layout(s), and equipment rack and cabinet details.
  - d. Video Projectors: Provide plan and section drawings verifying image width, lens-to-screen distances and mounting methods. Provide detailed drawings of custom-fabricated or stock mounts and hardware.
  - e. Video camera, video monitor, and loudspeaker mounting arrangements.
  - f. Shop drawings of any unit, such as control panels, switch panels, or loudspeaker enclosures or grilles, to be fabricated or modified.
  - g. Programming instructions for specified Programming Service Company or for AV control system manufacturer if programming is specified to be done by Manufacturer.
  - h. Logic and detailed control panel layouts prepared by specified Programming Service Company. Provide page graphics (including text, buttons, colors, images, backgrounds etc.), as well as page flips, sub-pages and overall page logic flow.
  - i. Submittals as required by specifications.
  - j. Others as required by Architect or Consultant.
- C. Samples:
- 1. Finish for control panels, racks, cabinets, and loudspeaker grilles.
  - 2. Mechanical connectors for use in wiring.
- D. Test Reports: Upon completion of SYSTEM PERFORMANCE TESTS AND ADJUSTMENTS specified in PART 3 - EXECUTION, submit for approval in writing test results including numerical values for all measurements. Also submit written certification that the installation conforms to specifications, is complete and operable, and is ready for FINAL ADJUSTMENTS AND ACCEPTANCE TESTS specified in PART 3 - EXECUTION. Provide three (3) copies unless otherwise specified.
- E. Operation and Maintenance Data - Coordinate with Section 01700

1. Draft Copies: At time of FINAL ADJUSTMENTS AND ACCEPTANCE TESTS specified in PART 3 - EXECUTION, provide draft copies of all specified diagrams, schedules and manuals for inspection during demonstration and acceptance testing. Submit final copies thereafter. All drawings shall be drawn on a computer-aided drafting (CAD) system. For Contractor-prepared drawings, schedules and instructions, provide three (3) draft copies, one (1) final copy for specified mounting, and two (2) final copies for inclusion in specified Complete Instruction and Maintenance Manual, unless a different quantity is otherwise specified.
2. Functional Diagrams: Simplified single line block diagram showing interconnection of all major equipment components and functional relationships. Illustrate all receptacles, patch panel jacks, attenuators, transformers, switches, and loudspeakers. Key each patch panel jack to the patch bay by row and jack number. Diagram shall not illustrate terminal or interconnection cable number designations. The Functional Diagram included with these specifications, modified to exclude details, transformer tap designations, etc., and to provide the information described above and any as-built changes, is suitable for this purpose.
3. As-Built Diagrams:
  - a. The intent of the diagrams is to provide sufficiently clear and complete information that a technician of average skill may efficiently troubleshoot and service the system, even if unfamiliar with the installation.
  - b. Provide drawings showing all terminal blocks, connectors, relays, switches, transformers, attenuators, equipment components, and wires. Label all devices with manufacturer, model number, and reference number (e.g. "SW 15 IN, "TB 6 IN); reference numbers shall be consistent across all drawings with no repetitions. As a minimum, provide an expanded version of the functional diagrams with cables fanned out at termination points and all labeling as specified above; provide additional drawings where system complexity does not permit complete information to be shown legibly on an individual sheet no larger than the project sheet size. Provide labels for cables continued onto another drawing, indicating termination device, terminal numbers, and drawing sheet on which the termination is shown.
  - c. Provide layout drawings of panels and other custom assemblies containing switches, relays, terminal blocks, receptacles, etc., using reference numbers to identify physical locations of devices or label devices with reference numbers in a location visible while viewing cable terminations. On wiring diagrams, label all conductors within cables for insulation color or other identifier. Label connectors, barrier strips, switches, relay sockets, etc., for terminal number. If device does not provide terminal designations, provide key diagram for reference.
4. Control Setting Schedule: Fully document the settings of all non-user-adjustable controls. This includes power amplifier gain controls, equalizer settings, etc.

5. Complete Instruction and Maintenance Manual: Prepare in the form of an instructional manual for use by Owner's personnel. Provide one (1) draft copy and two (2) final copies unless otherwise specified.
6. Format:
  - a. Size: A4, 20 lb. minimum weight white paper for typed pages, either manufacturer's printed data, or neatly typewritten.
  - b. Drawings: Provide reinforced punched binder tab, bind in with text. Fold larger drawings to size of text pages. Clear plastic "binding tape" (not "Scotch" tape) applied to edge of sheet and then punched is acceptable.
  - c. Single-sheet product literature and contractor-prepared pages: Provide reinforced punched binder tab. Clear plastic "binding tape" (not "Scotch" tape) applied to edge of page and then punched is acceptable.
  - d. Provide indexed tabs and flyleaf for each separate product, or each piece of operating equipment. Include typed description of product, and major component parts of equipment.
  - e. Cover: Identify each volume with typed or printed title "OPERATING AND MAINTENANCE INSTRUCTIONS".
  - f. Binders:
  - g. Commercial quality three-ring binders with durable and cleanable plastic covers.
  - h. When multiple binders are used, collate the data into related consistent groupings.
7. Content of Manuals:
  - a. Neatly typewritten table of contents for each volume, arranged in systematic order. Identify each product by product name and other identifying symbols as set forth in Contract Documents.
  - b. Contractor, name of responsible principal, address and telephone number.
  - c. Certificate of Warranty for the system as a whole as well as copies of the manufacturer's warranty for each equipment item.
  - d. Service Contract. Include a preliminary schedule for the specified semi-annual site visits.
  - e. Complete as-built diagrams for systems.
  - f. Functional Diagram.
  - g. Original copies, high-quality laser printer printouts of PDF files, or high-quality photocopies of manufacturers' installation, operation, and service manuals, including schematic diagrams for each equipment item.
  - h. Shop drawings of all custom-fabricated items.
  - i. Control Setting Schedule.
  - j. Audiovisual Control System:
    - 1) Color printouts of touch screens control panel graphic layouts, as installed.
    - 2) Listing of system brand, models and all associated peripherals.

- 3) CD-ROM containing the master program for the system, the touch screen display program (including all macros) and all programming, communication, or other project-specific software required for re-programming.
  - k. Software for Programmable Devices: Where a computer has been used in programming system components, provide CD-ROM and/or floppy disks containing the software, and instructions for making interconnections to the programmed devices for the purpose of modifying the programming.
- F. User Instructions:
1. Provide “Quick Start” user instructions for system to be used by non-technical staff. Instructions to provide step-by-step instructions for the most commonly used operations and screen shots of touchpanels or control panels as needed to clarify instructions. Use of color is encouraged.
  2. Provide three plastic-laminated instruction cards and a computer file in pdf format for each system.
  3. If complexity of system operation does not permit presentation of instructions on one sheet (2-sided), then provide a supplementary instruction manual in 3-ring binder with instruction pages in plastic page protectors. Laminated instructions shall refer to binder for operations not included on laminated instructions.

## **1.8 JOB CONDITIONS**

- A. Sequencing and Scheduling:
1. Coordinate work with adjacent work of other trades to facilitate construction and prevent conflicts.
  2. Afford other trades reasonable opportunity for installation of work and for the storage of materials.
  3. Staff the job to keep pace with the other Trades; otherwise, the Architect will require an increase in force or overtime work without additional expenses to the Owner.
  4. Abide by the decision of the Architect in case of conflict or interference by other trades.
  5. Refuse: Remove all refuse from the job site to the satisfaction of the Architect and Owner.

## **1.9 WARRANTY**

- A. Warrant all equipment to be free of faulty workmanship and defects, and from damage due to contamination by construction dust and debris for a minimum period of one year from date of final acceptance.
- B. Emergency service: Within 24 hours of notification, restore the system to operation, replacing defective materials and repairing faulty workmanship. Make temporary repairs and provide loaner equipment at no charge if defective materials cannot be permanently replaced or repaired within this 24 hour time period.

- C. Paint and exterior finishes, fuses, lamps, projection lamps, and video picture tubes excluded from above warranties except when damage or failure results from defective materials or workmanship covered by warranty.
- D. The minimum warranty provisions specified above shall not diminish the terms of individual equipment manufacturers' warranties.

#### **1.10 SERVICE CONTRACT**

- A. Provide a one-year service contract to commence after acceptance of installation without additional cost. Service to include two semi-annual visits to the site for routine adjustment and maintenance of all equipment. Provide a preliminary schedule for the semiannual visits.
- B. Towards the end of each year's Service Contract, provide the owner with a proposal for continued service during the next year.
- C. Provide separate cost amounts, per year, for service contracts for the three years following the completion of the initial year's service contract.

#### **1.11 TRAINING**

- A. The Owner may assign personnel to participate with the contractor during installation. Without delaying the work, familiarize the Owner's personnel with the installation, equipment, and maintenance.
- B. During tests and adjustments, permit the Owner's personnel to observe. When feasible explain the significance of each test.
- C. Provide sufficient training to personnel selected by the Owner on operation and basic maintenance of all systems and equipment. Explain operation of control systems, set-up and operation of individual pieces of equipment and functions of overall systems.
- D. Provide training for the Access Grid system: Min. 3-hour technical training session and two min. 3-hour user training sessions approximately one month after system acceptance.
- E. Separate from the bid response quotation, provide an hourly cost for additional training.

#### **1.12 INSPECTION**

- A. Notify the Architect of any defects in work by other trades affecting installation.

### **PART 2 - PRODUCTS**

#### **2.1 MICROPHONES AND AUDIO SOURCE EQUIPMENT**

- A. General:
  - 1. Sensitivity -55 to -65 dB unless otherwise stated.
  - 2. Outputs of all microphones 150-200 ohms nominal impedance, floating with respect to ground.

3. All captive microphone cables terminated with male gender 3-pin "XLR"-type connectors such as Cannon XLR-3-12C, Neutrik NC-3MC, or Switchcraft A3M. All other microphone cables terminated with mating connectors.
- B. Gooseneck Microphone:
1. Flexible gooseneck to accept stand adapter for handheld wireless mic.
  2. Black finish
  3. Acceptable Products:
    - a. Shure MX418D/C 18 IN

## 2.2 AUDIO SIGNAL PROCESSING EQUIPMENT

- A. Digital Audio Processor: 16i/16o
1. Up to 32 inputs/outputs on processing node device
  2. Input and output expanders (8 or 16-channel/CobraNet)
  3. On-screen display of the total audio design• configuration/control via PC/laptop (Ethernet)
  4. Third-party control via RS-232 or TCP/IP
  5. Remote control panels for levels, presets, etc.
  6. Built-in diagnostic tools
  7. Multi-level security coding
  8. CE marked and UL/C-UL listed
  9. Mixers: standard, automatic, matrix, combiners
  10. Equalizers: graphic, parametric, feedback
  11. Filters: HPF, LPF, high shelf, low shelf, all-pass
  12. Crossovers: 2-Way, 3-Way, 4-Way
  13. Dynamics: leveler, comp/limiter, ducker
  14. Controls: levels, mutes, presets, schedulers, logic gates, RS-232 commands, etc.
  15. Meters: signal present, peak, RMS
  16. Generators: tone, pink-noise, white-noise
  17. Acceptable Products:
    - a. Peavey Media Matrix Nion based system consisting of the following component devices: NION™ n3 DSP Devices, NIO-8ml II, NIO-8o, CAB 8i, and CAB 16o.
- B. Digital Audio Processor: 8i/8o
1. On-screen display of the total audio design• configuration/control via PC/laptop
  2. Third-party control via RS-232 or TCP/IP
  3. Built-in diagnostic tools
  4. Multi-level security coding
  5. CE marked and UL/C-UL listed
  6. Mixers: standard, automatic, matrix, combiners
  7. Equalizers: graphic, parametric, feedback
  8. Filters: HPF, LPF, high shelf, low shelf, all-pass
  9. Crossovers: 2-Way, 3-Way, 4-Way
  10. Dynamics: leveler, comp/limiter, ducker
  11. Controls: levels, mutes, presets, logic gates, RS-232 commands, etc.
  12. Meters: signal present, peak, RMS
  13. Generators: tone, pink-noise, white-noise

14. Acceptable Products:
  - a. Peavey Media Matrix x-Frame

C. Four-Channel Power Amplifiers:

1. Solid-state, three-channel power amplifier.
2. Features:
  - a. Capable of withstanding 10 dB input overload, output overload, and output short or open circuit in any combination indefinitely without causing component damage.
  - b. Front panel indication of clipping.
  - c. All inputs via XLR-type or barrier strip connectors.
  - d. All outputs via 5-way binding posts.
3. Minimum Performance Requirements:
  - a. Frequency Response:  $\pm 0.5$  dB, 20-20,000 Hz.
  - b. Distortion: 0.1% THD, 20-20,000 Hz at full rated output.
  - c. Noise: 100 dB below rated output, 20-20,000 Hz, unweighted.
  - d. Inputs: min. 15k, balanced, 1.9v for full output.
  - e. Minimum Rated Load Impedance: 4 ohms, or as otherwise specified; able to operate safely into any load.
  - f. Output Power: As specified, 20-20,000 Hz at 0.1% THD, all channels operating.
  - g. Power Output: 180 watts/channel into 8 ohms.
4. Acceptable Product:
  - a. Crown CTS 4200
  - b. Approved equal.

### 2.3 LOUDSPEAKER EQUIPMENT

A. Coaxial Ceiling Loudspeaker:

1. Two-way loudspeaker with separate coaxially mounted woofer and tweeter drivers. With attached multi-tap 70 volt line matching transformer, back box and grille. Back box steel coated with damping compound. Grille at least 20% open.
2. Acceptable Products:
  - a. JBL Control 26C

### 2.4 ASSISTIVE LISTENING SYSTEM

A. General:

1. Single-channel infrared transmission system capable of distributing program material for aid to the hard-of-hearing.

B. Classroom Transmitter/Emitter System:

1. Rack-mountable multi-diode infrared transmitter/emitter panels operable for either single or dual channel distribution.
2. Wall-mountable emitter panel
3. Features:
  - a. 2.3 MHz operation

- b. 120VAC transmitter operation.
- c. Operable for single or two-channel distribution.
- d. 1500 sq. ft. coverage (mono).
- 4. Acceptable Products:
  - a. Sennheiser SI1015/NT with::
    - 1) GA1031-CC rack mount kit.
    - 2) Power supply.
    - 3) SZI 1015 emitter with AX5-IR ceiling/wall mount kit..
    - 4) All necessary hardware, power and distribution cables.
- C. Headset/Receiver:
  - 1. Single-channel receiver with headphone for receiving broadband FM-modulated infrared signals.
  - 2. With volume control. 2.3 MHz operation.
  - 3. Minimum Performance Requirements:
    - a. Frequency Response: 30-18,000 Hz, nominal.
    - b. Distortion: 3% THD with 50% modulation.
    - c. Signal-to-Noise: 40 dB with DIN A weighting.
    - d. Battery Life: 5 hours.
  - 4. Acceptable Products:
    - a. Sennheiser 810 with battery.

## 2.5 CONTROL SYSTEM:

- 1. General:
  - a. Fully integrated, programmable system for control of audiovisual equipment and other motorized, electronic or electrical devices that can be remote controlled as well as switching of audio and video signals.
  - b. Supports 4-wire control network operation for interfacing with outboard, remote devices including control modules and control panels.
  - c. Optional support for 8-wire LAN/Ethernet expansion of the control network.
  - d. Programmable with high level language via external IBM-compatible or Macintosh computer (computer not provided.)
  - e. Except for free-standing applications, all non-cardframe modules provided with rack mount kits.
  - f. Listing below indicates the basis of the system. The contractor is responsible to review this configuration and supply all programming and any additional components required to make a fully-functional system.
- 2. Acceptable Products:
  - a. AMX NI-3100/ICS with the following components:
    - 1) AMX AC-RK Accessory Rack Mount FG515
    - 2) AMX MIO-CLASSIC-D-EN MIO Modero Keypad FG5795-12
    - 3) AMX PSN6.5 Power Supply FG423-41
    - 4) AMX MVP-8400i 8.4 IN Wireless Color Touch Panel FG5965-04
    - 5) AMX MVP-TDS Table Top Docking Station FG5965-10
    - 6) AMX NXA-WAP250G Wireless Access Point FG2255-50
    - 7) AMX NXS-NMS Net Module Card Cage FG2009-10

- 8) AMX PSN4.4 Power Supply FG423-44
- 9) AMX PC1 Power Control Unit FG670
- 10) Telebyte 232/485 Interface Converters
- 11) As required: power supplies and control cables.

## **2.6 VIDEO SOURCE AND RECORDING EQUIPMENT**

### **A. DVD/VHS Player:**

1. Features:
  - a. Composite video outputs and analog audio outputs.
  - b. HDMI Output
  - c. On-screen display.
  - d. Hand-held wireless remote control.
2. Acceptable Products:
  - a. Panasonic DMR-EZ48VK DVD VCR or Approved Equal.

### **B. Document Camera**

1. Features:
  - a. Composite video outputs.
  - b. HDMI Output
  - c. RS-232 Control Input
  - d. Built in light source
  - e. 40X zoom
2. Acceptable Products:
  - a. Epson DC-10 Document Camera DVI/RS233 or Approved Equal.

## **2.7 VIDEO ROUTING AND PROCESSING EQUIPMENT**

### **A. 12X4HV Matrix Switcher:**

1. Rack-mountable 12x4 input/output RGBHV matrix video switcher with BNC connectors and stereo audio.
2. Integral front panel controller with 16 memory presets.
3. RS-232 or RS-422 control, 9-pin female D-sub connector.
4. Minimum performance requirements:
  - a. Video Bandwidth: 200 MHz, fully loaded.
  - b. Video Gain: Unity.
  - c. Video Frequency Response: less than  $\pm 0.1$  dB to 30MHz.
  - d. Video Differential Gain Error: 0.01%, 0 to 10 MHz.
  - e. Video Differential Phase Error: 0.01%, 0 to 10 MHz.
  - f. Video Crosstalk Isolation: -50 dB at 5MHz.
5. Acceptable Products:
  - a. Sierra Pro - RGBHV 1204V5S 12x4 RGBHV with Audio or Approved equal.

### **B. 2X6 HDMI Switcher**

1. Features:
  - a. 2 HDMI Input
  - b. 6 HDMI Output
  - c. RS-232 Control Input

2. Acceptable Products:
  - a. Marantz VS 3002 HDMI Switcher RS233 or Approved Equal.
- C. 1X8 HDMI Distribution Amplifier
  1. Features:
    - a. 1 HDMI Input
    - b. 8 HDMI Output
    - c. RS-232 Control Input
  2. Acceptable Products:
    - a. Marantz VS 3002 HDMI Switcher RS233 or Approved Equal.
- D. HDMI Distribution CAT 6 Extender
  1. Features:
    - a. 1 HDMI Input to CAT 6
    - b. CAT 6 to HDMI Output
  2. Acceptable Products:
    - a. Gefen EXT-HDMI-CAT5X HDMI CAT-5 Extreme HDMI Extender or Approved Equal.

## **2.8 VIDEO DISPLAY EQUIPMENT**

- A. 32 IN Color LCD Display:
  1. Flat panel LCD display with minimum 32 IN diagonal viewing area
  2. Accepts composite video, S-video and VGA computer inputs.
  3. High brightness display with wide angle of view.
  4. Provide with wall mount.
  5. Minimum Performance Requirements:
    - a. Screen: 32 IN diagonal color.
    - b. NTSC video standard.
    - c. RS-232 control input.
    - d. Computer Compatibility: VGA, SVGA, XVGA, SXVGA.
    - e. Video Input: 1.0 V p-p, 75 ohms.
    - f. Audio Output: 2 watt stereo amplifier and accessory loudspeakers.
  6. Acceptable Products:
    - a. LG 32LG30 32 IN LCD Flat
    - b. Approved equal.
- B. 65 IN Color Display:
  1. Flat panel display with minimum 65 IN diagonal viewing area
  2. Accepts composite video, HDMI and VGA computer inputs.
  3. High brightness display with wide angle of view.
  4. Provide with wall mount.
  5. Minimum Performance Requirements:
    - a. Screen: 65 IN diagonal color.
    - b. NTSC video standard.
    - c. RS-232 control input.
    - d. Computer Compatibility: VGA, SVGA, XVGA, SXVGA.
    - e. Video Input: 1.0 V p-p, 75 ohms.
  6. Acceptable Products:

- a. Panasonic TH-65PF11 65 IN Display
  - b. Approved equal.
- C. 21.5 IN Color LCD Display:
- 1. Flat panel LCD display with minimum 21.5IN diagonal viewing area
  - 2. Accepts HDMI and VGA computer inputs.
  - 3. High brightness display with wide angle of view.
  - 4. Minimum Performance Requirements:
    - a. Screen: 21.5 IN diagonal color.
    - b. NTSC video standard.
    - c. RS-232 control input.
    - d. Computer Compatibility: VGA, SVGA, XVGA, SXVGA.
    - e. Video Input: 1.0 V p-p, 75 ohms.
  - 5. Acceptable Products:
    - a. Acer H213H 21.5 IN LCD Flat
    - b. Approved equal.

## 2.9 RACKS AND MISCELLANEOUS EQUIPMENT

### A. Equipment Racks:

- 1. General:
  - a. Equipment rack for standard 19 IN"wide panels. Minimum 16 gauge cold rolled steel construction with louvered sides. Mounting rails with tapped 10-32 threaded holes on EIA spacings. Welded construction.
  - b. Each rack furnished with permanently-mounted AC power 3 conductor grounded stripline rated for 15 amperes, with outlets on (6 IN) centers, extending full height of rack, and with incandescent illumination attached for ease in servicing.
  - c. Power for all rack equipment controlled by single master switch.
  - d. Finish as approved by architect.
- 2. Free-Standing Deep Racks:
  - a. Welded floor rack assembly, removable side panels.
  - b. Sides of adjacent racks bolted together and not provided with side panels.
  - c. Lockable rear door and adjustable mounting rails.
  - d. Overall depth 24 IN) min., height as indicated.
  - e. Acceptable Products:
    - 1) Middle Atlantic Products ERK Series with side panels and rear doors.
    - 2) Approved equal.

### B. Rackmount UPS

- 1. Features:
  - a. 4 Outlet
  - b. 120 Volt AC
  - c. 280 Watts Output
- 2. Acceptable Products:
  - a. APC Smart-UPS SC 450VA or Approved Equal.

### C. Network Switch

1. Features:
  - a. Two Gigabit, fanless, Web-managed switches
  - b. 24-port 10/100/1000 switch
  - c. Two dual-personality ports for RJ-45 10/100/1000
  - d. Support trunking and VLANs
2. Acceptable Products:
  - a. HP ProCurve Switch 1800-24G or Approved Equal.

### D. Custom panels, floorbox interfaces and rackmounts

1. Features:
  - a. Defined within the drawings
2. Acceptable Products:
  - a. Professionally assembled devices using industry standard components.

## 2.10 AUDIO AND VIDEO CONFERENCE EQUIPMENT

### A. Videoconference CODEC:

1. Bi-directional digital video CODEC to transmit and receive color video and audio for teleconferencing and distance learning. Capable of transmission and reception in true high definition resolution.
2. Features:
  - a. 360 DEG audio pickup
  - b. Audio Error Concealment
  - c. Direct POTS Connection
  - d. XGA Monitor Support
  - e. Support for 16:9 or 4:3 Format
  - f. Video Error Concealment
  - g. Adjustable Bandwidth for Content
  - h. Dedicated VCR/DVD Connection
  - i. Integration with Microsoft® Live Communications Server (LCS) via SIP
  - j. Advanced Encryption Standard (AES)
  - k. Multiple Use RS-232 Ports
  - l. Standards-based
  - m. FIPS 140-2 Certified
3. Minimum Performance Requirements:
  - a. Frame rate: 30fps.
  - b. Audio: Full-duplex
4. Acceptable System Consists of:
  - a. Polycom VSX 7400e (Presenter VTX: Incl VSX 7000e, PowerCam camera SoundStation VTX 1000, ImageShare II, VGA encoder key, People+Content IP English remote. COUNTRY CODE 54, NTSC 7200-22720-001)

- b. Polycom Quad BRI Module Four BRI/ISDN Network Module 2215-20949-200
- B. Videoconference Camera Cart/Jury AV Cart:
  - 1. Castered cart to support videoconference camera.
  - 2. Features:
    - a. Supports camera at 1000 mm above floor.
  - 3. Acceptable System Consists of:
    - a. Peerless ACC316 Component Shelf Safety Strap
    - b. Peerless ACC320 AV Cart Electrical Outlet Strip w/cord wrap
    - c. Peerless SR560M Flat Panel AV Cart w/Shelf

**PART 3 - EXECUTION**

**3.1 GENERAL**

- A. All types of equipment installed by competent workers at locations shown on the drawings in strict accordance with approved shop drawings and manufacturer's instructions.
- B. All equipment except portable equipment firmly held in place. This shall include loudspeakers, enclosures, amplifiers, cables, etc. Fastenings and supports adequate to support their loads with a safety factor of at least three unless otherwise stated.
- C. Take such precautions as necessary to prevent and guard against electro-magnetic and electro-static hum and to install the equipment so as to provide safety for the operator.
- D. Protect all equipment, including patch panels, connectors, receptacles, racks, consoles, and video projectors, from construction dust and debris until final acceptance of the system.

**3.2 TOUCH-SCREEN CONTROL PANELS:**

- 1. The programmer is encouraged to exploit the full capabilities of the control system, both functionally and graphically to provide the best possible control interface.
- 2. Within 90 days of contract award, submit initial panel graphic layouts with description of button responses for review by the consultant and owner. Revise and resubmit as required to incorporate comments. Do not proceed with basic control system programming (except for modules not affected by the control panel design) before final approval of control panel designs.
- 3. Make any adjustments, revisions, modifications, etc. to the control system required for complete, error-free, operation. Court representative shall approve all system operation, programming and functionality prior to installation.
- 4. General control panel and web interface programming guidelines:
  - a. Provide opening welcome screen for all systems containing appropriate graphic.

**Deleted:** with label to "Touch Screen to Activate System".

- b. Use of icons and graphic symbols is encouraged; however, except for certain universally-recognized icons, symbols should be supplemented with text labels to clarify meaning.
  - c. Use of subpages is encouraged to reduce unnecessary page flips. Buttons with major consequences, such as system power buttons, should not immediately initiate the corresponding action but rather call a subpage containing a message “Are you sure you want to . . .” and appropriate response buttons as a protection against accidental activation of the system function.
  - d. All tape and disc transport controls shall behave similarly, whatever the behavior of the transport’s front-panel controls (e.g. PAUSE will only have effect when transport is in PLAY; pressing PAUSE again or the PLAY button will resume play and unhighlight PAUSE).
  - e. Provide stand-alone application to duplicate all control panel functionality for each room using IP protocols over ethernet.
5. Specific control panel programming guidelines:
- a. Touchpanels [and web interface](#) shall control all presentation functions.
    - 1) Selection of a source provides a control screen with device controls, as appropriate, a preview window, and button(s) for “Display on Screen” (single-image mode).
  - b. Camera Control:
6. Ethernet/IP/Local Area Network Accessibility and Control
- a. Coordinate Ethernet connectivity and IP addressing of control devices with Electrical Contractor and the ICT management of the facility.
  - b. Provide end-user with remote control and management interfacing via Local Area Network access from a PC to any IP addressed control devices.
  - c. Coordinate with end-user and ICT management of the facility, on POP-3 email notification of system service issue where desired and/or where possible.
7. At all times a “Press Feed Disable” button shall be provided in the upper right ¼ of the screen. Said button graphic shall be a high contrast color. Button size displayed on the screen shall remain constant at all times, location and orientation shall remain constant at all times. Button shall be at least 1 IN high and 1 IN wide. Button shall cause all video and audio inputs to the system to go to an “off state”. The only microphone to remain in an “on” state shall be the judge’s mic.
8. System shall integrate with lighting control hardware provided by others. Lighting shall be coordinated with the system for functioning per the request of the court.

### 3.3 KEYPAD CONTROL PANELS:

#### A. Description of Keypad functions:

- 1. Podium
  - a. Laptop = Laptop input toggle on and off
  - b. DVD/VHS = DVD/VHS input toggle on and off
  - c. Document Camera = Document camera input toggle on and off

- d. Aux Input = Podium mounted auxiliary input toggle on and off
  - e. Doc Camera Zoom In = Document camera zoom in by incremental steps
  - f. Doc Camera Zoom Out = Document camera zoom out by incremental steps
  - g. DVD Select = Selects DVD functionality of the DVD/VHS player
  - h. VHS Select = Selects VHS functionality of the DVD/VHS player
  - i. DVD/VHS Play = Toggles the play function of the active DVD/VHS component
  - j. DVD/VHS Pause = Toggles the pause function of the active DVD/VHS component
  - k. DVD/VHS >> >>| = Toggles the fast forward function of the active DVD/VHS component
  - l. DVD/VHS |<< << = Toggles the reverse function of the active DVD/VHS component
2. Court Reporter
- a. Sidebar = Selects a combined audio signal for only the judges mic and the dedicated sidebar mic that is sent to the rack mounted headphone amplifier. Additional functionality may include a mute of all microphone feeds to the courtroom sound reinforcement system along with the inclusion of sound masking signal feeding the courtroom sound reinforcement system
  - b. Headphones Up = This will toggle incremental increases in the audio level of the headphone system
  - c. Headphones Down = This will toggle incremental decreases in the audio level of the headphone system
  - d. Headphones Mute = This will mute the audio signal to the headphone system
3. Clerk of Courts
- a. Presentation- Judges Preview = Only the LCD screen at the Judge location will be active, any audio feed from the presentation system will be muted. Final system configuration to be determined by the court.
  - b. Presentation – Enable = All functions of the presentation system will be active and operational.
  - c. Presentation Volume Up = This will toggle incremental increases in the audio level of the overhead speaker system.
  - d. Presentation Volume Down = This will toggle incremental decreases in the audio level of the overhead speaker system.
  - e. Podium Laptop = Laptop input toggle on and off
  - f. Podium DVD/VHS = DVD/VHS input toggle on and off
  - g. Document Camera = Document camera input toggle on and off
  - h. Podium Aux Input = Podium mounted auxiliary input toggle on and off
  - i. Press Feed Enable = This will allow the audio from the courtroom sound system and the video from the courtroom associated video input panel to be output in the press room

- j. Press Feed Disable = This will prohibit the audio from the courtroom sound system and the video from the courtroom associated video input panel from being output in the press room
  - k. Sidebar = Selects a combined audio signal for only the judges mic and the dedicated sidebar mic that is sent to the rack mounted headphone amplifier. Additional functionality may include a mute of all microphone feeds to the courtroom sound reinforcement system along with the inclusion of sound masking signal feeding the courtroom sound reinforcement system
4. Judge Bench
- a. Presentation- Judge's Preview = Only the LCD screen at the Judge location will be active, any audio feed from the presentation system will be muted. [Court representative shall confirm required functionality of this and all system programming functions regarding playback and presentation of evidence.](#)
  - b. Presentation – Enable = All functions of the presentation system will be active and operational.
  - c. Presentation Volume Up = This will toggle incremental increases in the audio level of the overhead speaker system.
  - d. Presentation Volume Down = This will toggle incremental decreases in the audio level of the overhead speaker system.
  - e. Press Feed Enable = This will allow the audio from the courtroom sound system and the video from the courtroom associated video input panel to be output in the press room
  - f. Press Feed Disable = This will prohibit the audio from the courtroom sound system and the video from the courtroom associated video input panel from being output in the press room
  - g. Sidebar = Selects a combined audio signal for only the judges mic and the dedicated sidebar mic that is sent to the rack mounted headphone amplifier. Additional functionality may include a mute of all microphone feeds to the courtroom sound reinforcement system along with the inclusion of sound masking signal feeding the courtroom sound reinforcement system
5. Jury Assembly System
- a. Source DVD/VHS = DVD/VHS input toggle on and off
  - b. Source PC = PC input toggle on and off
  - c. Wallplate #1 = Wallplate #1 input toggle on and off
  - d. Wallplate #2 = Wallplate #2 input toggle on and off
  - e. Jury Assembly Volume Up = This will toggle incremental increases in the audio level of the area overhead speaker system
  - f. Jury Assembly Volume Down = This will toggle incremental decreases in the audio level of the area overhead speaker system
  - g. Jury Hall Volume Up = This will toggle incremental increases in the audio level of the area overhead speaker system
  - h. Jury Hall Volume Down = This will toggle incremental decreases in the audio level of the area overhead speaker system

- i. Restroom Volume Up = This will toggle incremental increases in the audio level of the area overhead speaker system
  - j. Restroom Volume Down = This will toggle incremental decreases in the audio level of the area overhead speaker system
  - k. Video on = Brings the attached video monitors out of standby mode making them fully active
  - l. Video off = The attached video monitors are put into standby mode
6. Press Room
- a. Courtroom 2nd Floor = Selects the indicated video feed as the next source to be selected
  - b. Courtroom 5th Floor A = Selects the indicated video feed as the next source to be selected
  - c. Courtroom 5th Floor B = Selects the indicated video feed as the next source to be selected
  - d. Courtroom 6th Floor A = Selects the indicated video feed as the next source to be selected
  - e. Courtroom 6th Floor B = Selects the indicated video feed as the next source to be selected
  - f. Courtroom 6th Floor C = Selects the indicated video feed as the next source to be selected
  - g. Courtroom 6th Floor D = Selects the indicated video feed as the next source to be selected
  - h. Courtroom 7th Floor A = Selects the indicated video feed as the next source to be selected
  - i. Courtroom 7th Floor B = Selects the indicated video feed as the next source to be selected
  - j. Courtroom 7th Floor C = Selects the indicated video feed as the next source to be selected
  - k. Courtroom 7th Floor D = Selects the indicated video feed as the next source to be selected
  - l. Press to confirm selection = Allows the previously selected video source to be switched

### **3.4 LOUDSPEAKER EQUIPMENT**

- A. Ceiling Loudspeaker Enclosures and Grilles:
- 1. Loosely fill all enclosures with nominal 1-1/2 lb. per cu. ft. density fiberglass.
  - 2. Ceiling Enclosures: Enclosures supported directly from ceiling structure in an approved manner. Support directly by acoustical ceiling tile is NOT ACCEPTABLE.
  - 3. In areas with fabric or perforated metal ceiling panels mount loudspeakers above ceiling material where shown in plan. Distance between loudspeaker grille and ceiling material shall not exceed 25mm

### **3.5 VIDEO EQUIPMENT**

- A. Flat Panel Displays:
- 1. Mounting:

- a. DO NOT DISCARD ANY SHIPPING OR PACKING MATERIALS. SHIPPING CONTAINERS AND MATERIALS SHOULD TURNED OVER TO OWNER.
- b. Install display mount and support display at location and elevation indicated on approved shop drawings.
- c. Display mounts must meet all applicable safety and code requirements for ceiling mounted equipment.
- d. Provide all necessary display brackets, fittings, pipes, miscellaneous hardware and wireways.
- e. For displays support with ceiling mounts, use specified connection box in display pipe mount and route signal and power cables for display to box via mount pipe for a neat installation.

### **3.6 RACKS, CABLES, CONNECTORS, AND MISCELLANEOUS EQUIPMENT**

#### **A. Wiring and Interconnections:**

##### **1. General:**

- a. Exercise care in wiring to avoid damage to cables and equipment.
- b. Make all joints and connections with rosin-core solder or approved mechanical connectors, except mechanical connectors are NOT acceptable on microphone lines. Connections to transformer leads for distributed loudspeakers may be made using properly-sized wire nuts or nylon-insulated pigtail crimp connectors such as Waldom CE series. Wire nuts are not acceptable except at individual loudspeakers.
- c. All connections to screw-type terminals shall be made using spade lugs. Bare or tinned wire is not acceptable.
- d. All connections to lugless compression-type screw terminals shall be made using bare wire only. Do not tin wire.
- e. All wiring executed in strict adherence to standard broadcast practices. This includes:
  - 1) Dress cables in conveniently sized bundles, combed into parallel runs, either laced or banded with sufficient plastic ties.
  - 2) For equipment mounted on glides, or otherwise requiring servicing from the front of the rack incorporate a cable "service loop" of sufficient length to permit the equipment to be pulled forward from the rack for servicing.
  - 3) Support cables and bundles with sufficient plastic ties and support bars to ensure that no strain is placed on any connections or connectors.
  - 4) Organize cables and cable bundles behind patch bays to permit easy access to the patch panels to add or remove cables.
  - 5) Place cable markers 3 IN-5 IN back from video connectors to permit easy viewing. Do not bind markers into cable bundles.
- f. All audio signal lines carried by twisted-pair cable and switched with two poles per line unless noted otherwise. Do not tie one side of audio line to other audio lines.

##### **2. Grounding:**

- a. Ground equipment, racks, and audio line shields to independent audio system ground ONLY as shown on drawings. If not shown on drawings, ground case of power striplines in equipment racks to the racks and directly to isolated ground buss in the power panel or to power system ground at the building AC service entry only.
  - b. Ground all conduits ONLY to power system ground. Insulate all conduits and electrical boxes from sound system, including equipment racks and audio system ground.
  - c. Insulate all conductors in conduit, including shields, from the conduit, back boxes, and from each other for the entire conduit length.
3. Equipment Racks:
- a. Install equipment in racks to permit access to all equipment for service. Transformers, relays, terminal blocks, etc., mounted in rear of racks behind other equipment shall not prevent access to equipment connections or shall be mounted on hinged panels to permit access.
  - b. Wire all racks completely in the shop. No internal rack wiring to be done on the job site.
  - c. Install equipment in racks with ventilating panels as required to provide adequate ventilation and according to equipment manufacturer's recommendations.
  - d. Connect all microphone, DC control, and line level cables to equipment racks via specified audio terminal blocks. External lines to patch bay terminated directly on patch bay terminal blocks.
  - e. Connect loudspeaker lines with equipment racks via specified terminal blocks. Use spade lugs if barrier strips are used. Do not buss commons together. Do not ground.
  - f. No signal or control lines shall leave a rack without connecting via terminal blocks.
  - g. Provide unused panel space with blank or ventilating panels as shown on drawings.
  - h. Provide security covers, knob covers, or shaft locks for any rack-mounted equipment with front panel controls that are not intended for adjustment by the operator or users and that do not have other means of control security. Examples of such equipment include equalizers and permanently-set mixers.
  - i. Locate free-standing racks as indicated and to provide access to rear.
4. Conduit:
- a. Run all lines in metallic conduit or wireways unless otherwise indicated. Run microphone level, line level, loudspeaker level, and DC control wiring each in separate conduit.
  - b. Do not locate AC power lines in conduit containing audio or video lines.
  - c. Do not splice lines in conduit.
5. Receptacles:
- a. Provide finish sample for approval by Architect.
  - b. Wall-mounted receptacles in metal boxes at building standard receptacle height unless otherwise indicated.

- c. Floor-mounted receptacles in flush floor boxes with flush lids.
- 6. Unbalanced Receptacles:
  - a. Install 1/4 IN phone or RCA jacks to mounting plates with insulating washer and sleeve to electrically isolate the jack from the electrical box and conduit.
- 7. Video Receptacles:
  - a. Install feed-through BNC receptacles to mounting plates with insulating washer and sleeve to electrically isolate the receptacle from the electrical box and conduit.
  - b. Punch receptacles with "D" hole to prevent receptacle rotation within hole.

### **3.7 SYSTEM PERFORMANCE TESTS AND ADJUSTMENTS**

- A. Test all equipment to verify conformance with manufacturer's performance specifications and with this specification.
- B. Audio Systems:
  - 1. Absolute Impedance:
    - a. Set any loudspeaker level controls at zero attenuation. Measure absolute impedance value of each loudspeaker line at 250, 1000, and 4000 Hz, without amplifier connected but with all loudspeakers connected. Impedance shall be at least 90% of rated load impedance of respective amplifier. Check resistance of lines to all loudspeaker and microphone receptacles, with receptacles open and short circuited.
  - 2. Hum and Noise Level:
    - a. Adjust gain controls for optimum signal-to-noise ratio and full amplifier output with -55 dBm level at a microphone input and 0 dBm at line-level input.
    - b. Without changing gain, terminate microphone and line-level inputs with shielded resistors of 150 and 600 ohms, respectively.
    - c. Measure overall hum and noise level at each power amplifier output for each input channel. Level shall be at least 80 dB below rated power output of amplifier over a bandwidth of 20-20,000 Hz.
  - 3. Electrical Distortion:
    - a. Load power amplifiers with resistors matching nominal impedance of output terminals used in system in place of actual loudspeaker loads.
    - b. Adjust gain controls as for hum and noise level tests.
    - c. Apply 1000 Hz sine-wave signal from an oscillator having less than 0.1% total harmonic distortion to each microphone and line-level input at level required to produce measured full amplifier output.
    - d. Distortion shall measure less than 0.1%.
  - 4. Parasitic Oscillation and RF Pickup:
    - a. Set up system for each specified mode of operation.
    - b. Use 50 - 100 MHz bandwidth oscilloscope and loudspeaker monitoring.
    - c. Check to ensure that system is free of spurious oscillation and RF pickup in the absence of any input signal and also with system driven momentarily to full output at 160 Hz.

5. Buzzes, Rattles, Distortion:
  - a. Apply high-quality music signal to the system. Adjust the system for frequent peaks at its specified maximum sound pressure level.
  - b. Apply sine-wave sweep from 50-50,000 Hz at 6 dB below full amplifier power.
  - c. In both cases, listen carefully for buzzes, rattles, and objectionable distortion.
  - d. Correct all causes of such defects. If cause is outside the system, promptly notify the Owner or Owner's authorized representative and his Consultant, indicating cause and suggested corrective procedures.
6. Level Balance: Adjust level controls for all items of similar equipment for identical measured voltage gain.
7. Measure system acoustical performance using a sound level meter set for "slow" meter damping except as otherwise noted, and flat response with random incidence at a height of 4 to 5 FT. All interior finishes and furnishings shall be in place, and system gain shall be adjusted to provide levels of 70 to 80 dB and at least 10 dB above background noise at the measuring locations for these tests, except as otherwise noted. Include the following tests and adjustments:
  - a. Frequency Response:
    - 1) Measure loudspeaker frequency response with all control equalization set for flat response, using 1/3-octave bands of filtered pink noise centered on ANSI preferred frequencies, or broadband calibrated pink noise measured in 1/3-octave bands using a calibrated real-time analyzer.
    - 2) Adjust equalization to provide average system response within  $\pm 6$  dB of a response (0 dB) which is flat from 100-2500 Hz and slopes uniformly from 0 dB at 2500 Hz to -5 dB at 10,000 Hz.
  - b. Uniformity of Coverage:
    - 1) Use 4000 Hz octave band of random noise as test signal output to loudspeakers.
    - 2) Lateral Uniformity:  $\pm 8$  dB at all positions equidistant from front of hall.
    - 3) Front-to-Back Uniformity: Decreasing linearly within  $\pm 2$  dB from 0 dB at front of hall to -8 dB at rear as measured on the hall center line.
  - c. Maximum Output Level:
    - 1) Measure with standard "fast" meter damping.
    - 2) Loudspeaker Cluster: Capable of providing 95 dB SPL in the audience area on axis of any high-frequency horn. Distributed Loudspeaker Systems: Capable of providing 95 dB SPL on axis of any loudspeaker.
- C. Video Systems: Test the video system following the approved Proof-of-Performance Test Plan to verify that it meets these minimum performance requirements. Video tape machines are exempt from these system requirements.
  1. Video Standards:
    - a. Frequency Response:  $\pm 0.5$  dB, 60 to 4.18 MHz.
    - b. Crosstalk: -40 dB at 3.58 MHz.

- c. S/N Ratio: 45 dB, DC to 4.18 MHz, unweighted, peak to RMS.
  - d. Hum: <10 mV peak to peak.
  - e. Line and Field Tilt: 2% with 60 Hz square wave.
  - f. Differential Gain: 1% at 3.58 MHz, 10-90% APL.
  - g. Differential Phase:  $\pm 1^\circ$  at 3.58 MHz, 10-90% APL.
  - h. Envelope Delay:  $\pm 0.1$  microseconds, 0.2 to 2.1 MHz;  $\pm 0.05$  microseconds at 3.58 MHz.
  - i. Color Production: Primary and Complementary Colors (R, G, B, Cy, Yl, Mg) at 75% saturation within inner 50% of the of inner boxes ( $\pm 2.5^\circ$ ) when viewed on vectorscope.
  - j. Signal Levels: 1 V p-p,  $\pm 1$  IRE, at 100% peak white color bar.
2. Audio Standards:
- a. Frequency Response:  $\pm 1$  dB, 30-15,000 Hz.
  - b. Hum and Noise: -80 dBu, 30-15,000 Hz, unweighted.
  - c. Distortion: 0.25% THD, 30-15,000 Hz.
  - d. Signal Levels: +4dBu.
- D. Test Reports and Certificates:
1. Submit results of all tests and adjustments conducted above and certification that the installation is complete and ready for checkout as specified under SUBMITTALS in PART I - GENERAL.

### 3.8 FINAL ADJUSTMENTS AND ACCEPTANCE TESTS

- A. Upon approval of the contractor's test report, and at a time set by the Owner or Owner's authorized representative, assist the Consultant(s) in performing final system adjustments and acceptance tests. Provide all labor, material, tools, and measurement equipment necessary for these tests and adjustments, including the test equipment .
- B. The contractor's representatives assisting in performance of these tests shall be thoroughly familiar with all details of the system, and shall include the field supervisor in overall charge during the course of the installation work.
- C. Budget 32 working hours for the performance of these tests and adjustments. If final acceptance is delayed beyond this period because of installation not in accordance with these specifications, pay for all additional time and expenses of Consultant(s) during any resultant extension of the acceptance testing period.
- D. Acceptance tests may include speech intelligibility surveys and subjective evaluations by observers listening at various positions under various operating conditions, using speech, music, and live or recorded effects material.
- E. Measurement of frequency response, distortion, noise, or other characteristics may be performed on any item or group of items deemed necessary to determine conformity with specifications.
- F. Adjustments: Adjust the system as instructed by the Consultant. Adjustments may be required to any portion of the system including:
  1. Equalization and level balance.
  2. Timing and programming of the audiovisual control system.

**END OF SECTION**