

AUDIOVISUAL SYSTEMS SPECIFICATION

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Associated bid instructions and scoring criteria provided by the Courts
- B. Attachment B: Audiovisual System Drawings dated March 23, 2020
- C. Attachment C: Audiovisual System Narrative dated March 23, 2020
- D. Attachment D: Audiovisual System Equipment List dated March 23, 2020

1.2 SUMMARY

A. Audiovisual Contractor's (AVC) Scope of Work:

Technical and cost submittal to include all materials, labor, tools, coordination with other trades, transportation, supervision, project management, etc. which is necessary for an AV Contractor (AVC) to provide, install, program, and commission a fully functional audiovisual system. The scope includes, but is not limited to:

1. Audio and sound masking system equipment including microphones, digital signal processors, source equipment, mixers, amplifiers, and speakers.
2. Video equipment including cameras, displays, mounts, recessed back boxes, video conferencing equipment, source equipment, routing, and signal distribution equipment.
3. Remote control equipment including control system processors, touch panels, AV network switches, power distribution systems, and programming.
4. Equipment racks and associated accessories such as caster bases, doors, power distribution systems, rack shelves, blank panels, cooling fans, cable management, and rack screws.
5. All cabling, custom connection plates, and terminations as required.
6. All required hardware for mounting the above including rigging materials such as Unistrut, all-thread, aircraft cable, safety cables, and chains.
7. Timely coordination with the Courts, Construction Manager, General Contractor, Electrical Contractor, and other Project Team members during construction to ensure that device locations and cable paths are clear for installation.
8. The AVC will coordinate the location of all display mounts as well associated blocking, recessed back boxes, power, and low voltage receptable with the General Contractor and Electrical Contractor.

B. Audiovisual Contractor's (AVC) Excluded Scope of Work:

The items listed above are to be provided and installed by the Audiovisual Contractor (AVC) as part of the AV specification. The following items will be provided by the General Contractor or the Court's Contractors. It will be the Audiovisual Contractor's responsibility to coordinate with the Courts and

General Contractor to ensure the proper equipment is provided and installed correctly as needed for proper function of the AV systems. Items excluded from the AVC's scope of work include:

1. AC Power outlets (power within AV racks will be provided by the AVC).
 2. Conduit, junction boxes, cable trays and pull boxes.
 3. Floor boxes and / or audiovisual poke thru devices.
 4. Conduit sleeves and sealant through full-height fire and acoustical partitions
 5. Plywood wall blocking for displays and wall mounted equipment racks.
 6. Recessed display back boxes, recessed display ceiling boxes, and recessed sound masking system power supply ceiling boxes to be provided by the AVC for installation by the General Contractor and / or Electrical Contractor.
 7. Cable TV outlets, receivers, and signal distribution equipment.
 8. Analog or VOIP telephone outlets (AVC will provide patch cables to AV devices).
 9. Court's network LAN work area outlets and associated cabling. (AVC will provide patch cables to AV devices).
 10. Central Recording Cables: The Court's cabling vendor (under the low voltage cabling contract) is to provide central recording cables from the AV rack at Hearing Room JM30 and each of (6) Courtrooms to the Central Recording server room. Each space is to receive an (8) pair analog audio cable and (2) terminated CAT-6a cables (for future Dante / AES67 connection).
- C. Audiovisual schematic drawings are intended to represent design intent only. Drawings are not to be considered actual cabling details.

1.3 BID SUBMITTALS

Provide (2) binders with Volume 1 "Technical Proposal" and Volume 2 "Cost Proposal". Provide (4) copies of each binder.

A. Volume 1 – Technical Proposal

1. Tab A – Executive Summary: Provide a brief narrative outlining the firm's understanding of the project, the firm's capabilities, experience with similar projects, and the firm's approach to completing the project.
2. Tab B - Project References: Provide (5) references of projects completed in the past (3) years of similar scope with similar products. References will include a brief description of the AV systems provided, estimated project cost, and a contact person with phone number.
3. Tab C - Resumes of Key Personnel: Provide resumes of key personnel including relevant work experience and certifications. Note which personnel worked on the reference projects above.
4. Tab D - Sample Touch Panel User Guides: Provide (3) sample touch user panel guides from previous projects. User guides are preferred, but screen shots will also be acceptable at a minimum.

5. Tab E - Equipment List: Provide an equipment list (without pricing) of the planned equipment to be used.
6. Tab F - Risk Mitigation: Provide a brief description of at least (3) risk factors which may affect the firm's ability to successfully complete the project on schedule. Provide a recommended mitigation approach for each risk factor.
7. Tab G - Quality Control Plan: Submit a quality control plan, with sample reports, to exhibit the firm's approach to ensuring a successful technology integration project.

B. Volume 2 – Cost Proposal

1. Tab A - Cost Proposal: The cost proposal shall include at a minimum:
 - a. Itemized pricing, by space type, of all equipment, installation, project management, programming, materials, shipping, and cost of required low-voltage permits.
 - b. A pricing summary by floor, with each space on each floor addressed in a similar format to that provided in the AV Equipment List.
 - c. Cost of any required performance bonds.
 - d. Itemized cost of any proposed optional equipment and installation (this cost shall be valid for a period of 90 days from date of bid acceptance).
 - e. Cost for an optional extended warranty. Refer to section 3.6.F

1.4 SUBMITTALS

- A. Shop and Field Drawings: Submit the following for approval prior to purchase of equipment:
 1. AV Equipment Data "Cut" Sheets
 2. Schematic signal flow drawings detailing the connection of all equipment to be furnished.
 3. Equipment rack elevations
 4. Shop drawings for custom rack plates, wall panels, and floor box plates
- B. Touch panel design and programming submittals:
 1. The touch panels will be designed and coordinated with DC Courts prior to implementation. Touch panels will be based on existing systems in use, and design files will be provided to the AVC for modification and use in this project.
 2. Final touch panel pages will be submitted for review a minimum of (30) days prior to planned implementation.
 3. Following the expiration of the initial warranty period, the uncompiled touch panel pages and processor code will be provided to the Courts. The cost of providing the touch panel source code shall be included in the firm's programming costs.

4. A touch panel user guide will be provided. The guide will include directions for commonly used applications (such as video presentation, VTC, ATC) for each space utilizing “highlighted” screen shots of the touch panels with directions on how to use the touch panels.
 5. An additional (60) hours of control system programming time will be included in pricing for post-occupancy, Court requested modifications to the control system programming.
- C. As Built Drawings: Submit final as-built versions of all shop and field drawings above for approval prior to final acceptance testing. Include cable numbers for all signal flow drawings.

PART 2 – PRODUCTS

2.1 SUBSTITUTIONS

- A. AV drawings and specifications utilize basis-of-design products to indicate desired system functionality. Other products with similar functionality may be considered by the Courts.
- B. Submit product substitution requests, prior to bid submittal, for any product not listed on the equipment list. Submit all requests to the Contracting Officer during the specified time frame for written questions during the pre-bid period. Substitution requests will include a manufacturer data sheet of the proposed product with a brief explanation of any exceptions or additional functionality provided by the submitted product.
- C. Substitute equipment shall not require any modifications to the planned electrical or architectural infrastructure.
- D. DC Courts may require additional information (such as signal flow sketches) or an evaluation sample of any proposed substitute equipment.
- E. Any use of substitute equipment shall be at no additional cost to the Courts.

2.2 EQUIPMENT

- A. The included equipment list and associated drawings provide a listing of the basis-of-design equipment
- B. Prior to ordering equipment, the AVC shall verify that the proposed equipment is the latest model. If a newer model is available post-award, an RFI should be submitted with the data sheet of the newest model for approval
- C. Coordinate the color and finish of all exposed equipment prior to ordering

2.3 SYSTEM CABLING

- A. Basis-of-design cabling: Provide cabling equivalent or better to all specified cabling below:
 1. Network / Ethernet Cables: Belden 10GXW13, Category 6A, UTP Plenum Cable, 0.250” OD Small Diameter Cable
 2. Digital Media / HD Base-T Cables: Crestron DM-CBL-ULTRA-P, Category 7A, Shielded Twisted Pair (S/FTP) Plenum Cable
 3. Speaker Cable: West Penn 25224B, 2 Conductor, 18 AWG, unshielded stranded cable, plenum rated

4. Microphone Cable / Line Level Audio: West Penn D25291, 2 Conductor with drain, 22 gauge, plenum rated
 5. RF Antenna Cabling: West Penn 25812, RG/58, plenum rated
 6. HD SDI Cabling: West Penn 256350, RG/6, plenum rated
 7. 12G SDI Cabling: Belden 4694F, RG/6U (in conduit)
- B. All AV cabling including, AV network cabling, to be black.
- C. Install all cabling in a professional manner, provide adequate service loops to allow access to the rear of all equipment.
- D. All cables shall be labelled with a printed, permanent label on each end of the cable. A logical labeling system shall be used and shall maintain the same cable number from the source to the destination. Handwritten labels will not be accepted.

PART 3 – EXECUTION

3.1 INSTALLATION

- A. The AV Contractor shall coordinate the installation of all cabling, equipment, and associated hardware to be compatible with the project schedule.
- B. The AV Contractor will unbox and test all equipment to ensure that it is functional and not damaged prior to delivery to the job site.
- C. The AV Contractor will update the firmware of all equipment to the latest version prior to delivery to the job site.
- D. All dedicated AV racks will be built, wired, and tested prior to delivery to the job site.
- E. Perform installation and ground techniques in accordance with industry standards such as the National Electric Code and Avixa best practices.
- F. Keep an accurate and complete set of shop drawings on the job site.
- G. The AV Contractor will clean and restore their job site work area to the original condition after each day's work.
- H. Equipment shall be installed following the manufacturer's instructions.
- I. Securely install, fasten, and support all hardware without reducing equipment functionality.
- J. Install all equipment in the appropriate rack cabinets and at other locations as directed by the contract drawings.
- K. Label all equipment and controls with printed labels.
- L. Field verify all equipment locations prior to installation.
- M. All identical AV systems are to be loaded with identical control system code.

3.2 PRE-ACCEPTANCE TESTING

- A. Upon substantial completion of the installation, the AV Contractor shall conduct an internal pre-acceptance test to identify and correct any incorrect or uncompleted items. A preliminary punch list will be provided to the Courts by the AV Contractor.

3.3 ACCEPTANCE TESTING

- A. Following receipt of the preliminary punch list and remediation of the listed items by the AV Contractor, an acceptance test will be conducted with representatives from the Courts and design team present.
- B. The AV Contractor will demonstrate the overall operation of the AV systems, while operating each individual piece of equipment (when applicable). The AV Contractor will demonstrate that the equipment and systems function as intended by the manufacturer and as directed by the specifications.
- C. After the acceptance test, a punch list of deficient items will be provided to AV Contractor by the Courts for the AV Contractor to complete or correct.

3.4 SYSTEM TRAINING AND OPERATION ASSISTANCE

- A. After the completion of the punch list items above, the AV Contractor will conduct on-site training and operation assistance to instruct the Courts' staff on the functionality and operation of the AV system, basic maintenance, and rudimentary trouble-shooting.
- B. Pricing will include a nominal (80) hours for both on-site training and operation assistance for in-situ training.
 - 1. Provide a minimum of (2) training sessions:
 - a. The first session will occur immediate after installation system acceptance and will cover the operation of each system, including the touch panel guide (see section 1.4.B.4).
 - b. The second session will occur (4) weeks after the first session. The operating instructions (see section 3.5) will be provided at this time. The second session will train additional staff, refresh previously trained staff, and provide in-depth training to address any questions and / or issues occurred during the first month of use.
 - 2. Provide on-site operation assistance (within the allotted hours above) as requested by the Courts for in-situ staff training during system use.

3.5 SYSTEM OPERATING INSTRUCTIONS

- A. Following acceptance of the system, provide instruction manuals for the operation and service of each AV system. Provide (4) electronic copies (CD/DVD ROM or USB Thumb Drive). All information shall be in .pdf format (unless otherwise noted).
 - 1. The Instructions shall be clearly identified, and sorted into the following folders on the submitted media. Information to be provided includes:

- a. As-built drawings (see section 1.4.C)
- b. Touch panel user guides (see section 1.4.B.4)
- c. Individual, manufacturer provided, user guides for each piece of provided equipment, listed by manufacturer and model number
- d. Individual, manufacturer provided, service guides (as provided) for each piece of provided equipment, listed by manufacturer and model number
- e. Warranty information for all provided equipment
- f. An equipment list with line-item listing of equipment per room including manufacturer, part number, serial number, IP address, and firmware version. This will be provided in both .xls and .pdf formats.

3.6 SYSTEM INSTALLATION WARRANTY AND MAINTENANCE

- A. One Year Warranty – The AV Contractor shall guarantee the system for a period of one year from the date of final system acceptance against improper installation, defective materials, design errors, workmanship, improper configuration, and programming. Defective material will be repaired or replaced at no expense to the Courts (assuming the item does not show apparent abuse). The AV Contractor will respond to any service calls within the next business day.
- B. When attic stock is not provided or not available as a replacement for defective equipment, provide advanced replacement or rental equipment when possible for continued operation of the AV systems.
- C. Provide (4) service calls with one every (90) days during the Warranty period to perform required system maintenance and to provide firmware updates to all equipment with new firmware available.
- D. This warranty shall not void any rights guaranteed to the Courts by law.
- E. This warranty shall not apply to any existing owner-provided equipment.
- F. Pricing shall include the cost for a second year, extended service contract valid for one year from the date of the conclusion of the initial warranty. This service contract shall include services calls every (90) days as directed above as well as any Courts directed system adjustments.

END OF SPECIFICATION