Thursday, October 18, 2018

Request for Proposal

Audio/Video Remodel and Upgrade of County Council Chambers

Wasatch County Administration Building
25 N Main St Heber City, Utah 84032

Open  11/01/2018 12:00 PM MDT
Close  12/03/2018 5:00 PM MST

Contacts

Don Wood
dwood@wasatch.utah.gov

Description

Wasatch County – Information Systems is requesting submissions for the following project:

REMODEL AND UPGRADE OF AUDIO AND VIDEO SYSTEMS OF THE WASATCH COUNTY COUNCIL CHAMBERS – HEBER CITY, UTAH

Project Description

The project will involve the removal, remodel, upgrade and installation of new audio and video equipment in the County Council chambers. Various public meetings are held in this room and viewed via Internet streaming.

Bidders must be Prequalified

All bidders must be prequalified. Contact Don Wood at Wasatch County Information Systems 435-657-3196 for a list of qualified bidders. All qualification requirements are contained in the documents listed below.

Sound Design International will qualify all bidders. Bryan Keeler of Sound Design International can be reached at 533 West 2600 South, Suite 110 Bountiful, Utah 84010, (801) 298-1113, bkeeler@sounddesignint.com. Reference project 2018-007.

Bid Submission

Bids must be submitted to the Wasatch County Information System Department. Don Wood will be the contact person. Don Wood can be reached at 55 S 500 E Heber City, Utah 84032, (435) 657-3196, dwood@wasatch.utah.gov.

Project Documents (Included in this document)

- Audio Visual Systems Requirements
- Overall Project Layout
- Wasatch County Council Design

Published in the Wasatch Wave, Salt Lake Tribune and County website.
SECTION 27 5115

AUDIO VISUAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Includes But Not Limited To:
   1. Procure and pay for all permits, licenses and inspections.
   2. Furnish and install complete and operational systems as described in this specification section and drawings sheets G001, ET101, TA501, TA601 and TA602 which are considered the Contract Documents.
   3. If a conflict between written specification and drawings is found, Contractor must seek clarification from Consultant.
   4. Drawing and specifications show design intent. Contractor shall provide additional equipment not listed to provide a complete and functioning system.
   5. Contractor shall insure equipment and materials against loss or damage until acceptance.
   6. Comply with Federal, State and Local labor regulations and applicable Union regulations.
   7. Installation shall comply with the following standards:
      a. Sound System Engineering (Davis & Davis, 1987)
      b. Audio Systems Design and Installation (Giddings, 1990)
   8. Assist Consultant with commissioning of systems and provide necessary test equipment for system tests.

B. Related Requirements:
   1. Division 1
   2. Division 26:
      a. Raceways, boxes, and fittings.
   3. Other Divisions requiring coordination with these systems.

1.2 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Coordinate with General Contractor, Electrical Contractor and other subcontractors to help project move ahead without interruption or delay.
   2. Coordinate commissioning dates a minimum of three weeks before commissioning with Consultant.

1.3 SUBMITTALS

A. Bid Submittals
   1. Contractors shall review and understand all presented on drawings and specifications pertaining to these systems.
   2. If an existing facility, a visit to site is required prior to bid. Existing system equipment shall be removed by Contractor and disposed of as directed by Owner.
   3. Clarification request shall be made in writing no less than ten (10) business days prior to bid date.
4. Bid submittals shall include:
   a. Total contract price
   b. Unit pricing for all item on equipment list
   c. Lot pricing for miscellaneous items not listed

5. Substitutions request shall be made in writing at least ten (10) days prior to bid date and will include:
   a. Contractor’s responsibility is to prove to Consultant the proposed equipment, material or system is equal to the specified by:
      1) Listing advantages
      2) Cost savings
      3) Printed specifications and laboratory test data
      4) Previous field experience
   b. Contractor shall provide system as specified if Consultant deems proposed equipment or method not equal.

B. Informational Submittals:
   1. Itemized list of equipment to be supplied with product data sheet in order shown on drawing equipment list(s).
   2. Shop drawings: Consultant approval is required prior to fabrication and installation.
   3. System programming with touch panel graphics requires Consultant approval prior to installation.

C. Closeout Submittals:
   1. See 3.6 D in this specification section

1.4 QUALITY ASSURANCE

A. Qualifications:
   1. Contractor Qualifications:
      a. Approved Contractors:
         1) Digital Video Networks (385) 202-0789
         2) Marshall Industries (801) 266-2428
         3) Poll Sound (801) 261-2500
         4) Professional Systems Technology, Inc. (801) 649-6696
         5) Atkinson Sound (435) 783-5330
      b. Bids submitted by non-pre-qualified bidders will not be accepted.
      c. Contractor requirements to qualify:
         1) All Contractors submitting bids must be approved by Consultant no later than ten (10) business days before bid.
         2) Work of this section shall be contracted to a single firm, referred to as Contractor, for undivided responsibility. If a Subcontractor is required, their qualifications must be submitted with Contractor. Subcontractor also must be approved by Consultant. Bid shall be disqualified if Subcontractor not approved.
         3) Submit following information for possible approval:
            a) List of a minimum of five (5) projects of similar size and scope comparable to project described herein successfully completed within past five (5) years, indicating location, type of system installed, total contract amount, date completed, and persons with telephone number to contact as references
            b) Contractor shall in-house technical talent, facilities for installation, shop fabrication, and repair service of specified professional systems.
            c) Contractor shall have on his full-time payroll at least one staff engineer having five (5) years minimum experience as an engineer. Resume of engineer shall be provided. Staff engineer shall provide all technical liaisons between Contractor and Consultant; Represent Contractor at
meetings and conferences as well as present at job site for commissioning; Be responsible for supervision of all technical and engineering work required to execute contract; And, in particular, approve and sign all shop drawings throughout life of project.

d) Installation personnel shall have CTS-I designation; affidavits to be provided.

e) Must be dealer or distributor of equipment included in bid and provide documentation from manufacturers stating such.

f) Outline general scope of past projects, normal staffing levels, and union status of shop and field installation personnel.

g) Contractor must have capability to generate AutoCAD drawings.

h) Show confirmation of current State or Local contracting license(s) as required to perform work under this section.

1.5 WARRANTY

A. Special Warranty:
   1. Warranty period shall start on date of acceptance after commissioning.
   2. Provide complete warranty repair or replacement for one year from commissioning at no cost to Owner, except in case of obvious abuse.
   3. Honor component warranties for term established by Manufacturer if greater than one year.
   4. Activate all manufacturers’ equipment warranties in Owner’s name to commence on date of acceptance.
   5. Replace defective equipment and faulty workmanship within seventy-two (72) hours of discovery at no cost to Owner during warranty period.
   6. If, during warranty period, any component is out of service for more than one (1) week due to unavailability of parts or service, supply and install identical new component. If identical component is not available, substitute equivalent equipment, but only with approval of the Owner.

PART 2 - PRODUCTS

2.1 GENERAL EQUIPMENT

A. Major equipment is listed on drawings.

B. Supplied equipment and materials shall be new and of latest design and model.

PART 3 - EXECUTION

3.1 FIELD COOPERATION

A. Cooperate always and to fullest extent with all trades so lost time, work stoppages, interference, and inefficiencies do not occur.
3.2 SHOP DRAWINGS SUBMITTALS

A. Submit PDF of shop drawings of systems within sixty (60) days after award of contract for review by Consultant prior to fabrication. Submittal shall include:
   1. Table of Contents
   2. Catalog sheet for all equipment in order shown on drawings.
   3. System functional block drawings including all equipment names, model numbers and interconnections. Include all connections, numbers and names.
   4. Provide full scale drawings of all custom plates and panels indicating exact lettering, critical dimensions, and finish.
   5. Mechanical drawings of equipment cabinets with equipment loaded.
   6. Mechanical drawings of custom speaker mountings sealed by a Structural Engineer licensed in the State of Utah.
   7. Color graphic of touch panel pages.
   8. Programming files of all electronics.
   9. Provide list of test equipment, including manufacturer, description, and model number, expected to be employed in test and adjustment of systems.

3.3 EXAMINATION

A. Verification Of Conditions:
   1. Verify compliance with following items before beginning work of this Section.
      a. No cables spliced.
      b. Equipment cabinets and boxes shall have insulated bushings to isolate them from conduit system.
      c. Isolated grounds run back to electrical panel from all equipment cabinets.
      d. Specified conduit, boxes, cables, speaker enclosures, and equipment cabinets are properly installed.
      e. Conduit routing is short as possible and correct size.
      f. Immediately report to Consultant any design or installation irregularities.

3.4 INSTALLATION

A. AC Power
   1. Power to system electronics shall be by an isolated ground system.
   2. Equipment cabinets shall be grounded to AC isolated ground.

B. Equipment
   1. Provide new equipment that shall meet or exceed latest published specifications of manufacturer in all respects as specified in the Equipment List on the drawings.
   2. Supply latest model of each piece of equipment.
   3. Contractor shall paint visible devices; color shall be reviewed and approved by Architect.

C. Speakers
   1. Maintain uniform polarity in speakers and wiring.
   2. Employ no positive stop in rotation of speaker volume controls. Controls shall be capable of continuous rotations in either direction.
   3. Neatly mount speaker grilles, panels, connector plates, control panels, etc., tight, plumb, and square unless indicated otherwise on drawings.
   4. Aim speakers as shown on the drawings.
   5. Provide adequate fastenings and supports with a safety load factor of at least three (3) and adhere to all seismic requirements.
D. Equipment Cabinet
1. Equipment cabinets shall be loaded, wired, and tested in Contractor’s shop prior to installing plumb, square, and seismic correct on site.
2. Equipment cabinets shall be positioned to permit full access for operation and service.
3. Install vent panels at top and bottom of equipment cabinets for maximum ventilation if convection cooled. Locate amplifiers at top of cabinet if convection cooled or at bottom if amplifier contains fans. Locate digital signal processors in middle of equipment cabinet, separated by several blank panels of same color.
4. Utilize all fastening holes in front of cabinet with all openings filled with blanks or vents and install security covers on all equipment with front panel controls.
5. Securely fasten in place equipment that is not made to rack mount. Do not use sticky-back tape.
6. Install balancing/isolation transformer when balanced and unbalanced components are connected.
7. Wire XLR-type connections with pin 2 = high, pin 1 = shield, and pin 3 = low.
8. Equipment cabinets and boxes shall be kept clean and free of dust and dirt on the inside and out.
9. Identification:
   a. Legibly identify user-operated system controls and system input/output jacks using permanently attached labels. Label all equipment and controls within equipment cabinets using permanent labels. Multichannel power amplifiers outputs shall be labeled with the area they service.
   b. Affix label to rack panel inside cabinet listing name and telephone number of Contractor. Appropriate warranty instructions may be included.

E. Cables:
1. Polarity shall be maintained throughout the systems.
2. All cables shall be in minimum of ¾” conduit with less than a 40% fill.
3. Splicing of cable is not permitted except for 70-volt distribution cables between loudspeakers.
4. Leave sufficient service loops of uniform length on cables inside equipment cabinets (to allow equipment to be pulled out of front of cabinet) and boxes to allow future equipment inspection and replacement.
5. Make parallel connections or splices on standard barrier terminal blocks, or on equipment terminals using appropriate connection type. Do not attach more than two wires under any one screw terminal using property crimped spade connectors.
6. Strip and heat shrink tubing on wires with separate tubing shield so 1/16 inch (2 mm) of wire is exposed outside connector when wire contacts back of connector:
   a. Secure wires using screwdriver with blade of same width as screw slot and handle 3/4 inch (19 mm) minimum diameter and of length to allow applying sufficient torque to prevent wires from becoming disconnected.
7. Terminate conductors with proper mating connectors:
   a. Do not use adapters.
   b. Use proper crimp tool as recommended by connector manufacturer.
8. Category cable connectors shall be color coded to match IT scheme of building.
   a. After installing Category cable connectors, test Category cables for shorts, opens, and cross-pairing with two-piece wire-mapping continuity tester.
9. Secure cables to equipment cabinet with Velcro straps to ensure neat installation. Use Velcro straps every 6” to 10” on cable bundles.
10. Ground one end of each cable shield within equipment cabinet.
11. Ground microphone cables only at mixer/DSP
12. Label within 6” of both ends of cables with source and destination using permanent non-handwritten labels inside and outside equipment cabinets. Use Hellermann Tyton Tag 49L-105 or similar label types.
   a. Examples: DSP IN 1; POWER AMP IN 1-A.
13. Group all cables per signal type and level being carried to reduce signal contamination, form separate groups for the following cables:
   1) Microphone cables; separated by 24" from power and 12" from other cables.
   2) UTP, sound system control, telephone, video or ATC cables: separated by 12"
      from power and 6" from loudspeaker cables.
   3) Loudspeaker cables; separated by 12" from power cables.
   4) Antenna cables; separated by 24" from power cables and 12" from all other
cables.
   5) Power cables.
14. Install no cable with a bend radius less than that recommended by cable manufacturer.
15. Grommets, bushings and other devices shall be used to ensure integrity of cable now
    and in the future.
16. Bundle multiple cables in Tech Flex if in full view of Owner. Color shall be approved by
    Architect.
17. Use plenum rated cable, tie-wraps, and supports when conditions require it.
18. Free-wire cable shall be supported every four (4) feet and not lay on top of ceiling or
    other objects in the plenum space.
19. All electrical power for electronics in equipment cabinet shall be through transient voltage
    surge suppressors with a minimum of 20% spare receptacles with correct polarity.

F. Equipment installed in millwork shall be cut in with the upmost care and aesthetic value. Verify
   that adequate cooling for electronics is sufficient.

G. Any damage during installation, intentionally or unintentionally, shall be repaired in a
   professional manner at no cost to Owner.

3.5 OPERATION INTENT

A. Audio System Sound Mix Definitions
   1. Council Chambers Mix shall contain sound from all microphones except hanging
      microphones above public seating, and audio from the currently-selected video source
      input.
   2. Overflow Mix shall contain all audio from Council Chambers Mix, and audio from
      microphones above public seating.
   3. Privacy Mix shall contain a sound masking signal generated by the audio DSP.

B. Sound Mix Destinations
   1. Council Chambers Mix shall output to DSP output 1 (speakers located in Council
      Chambers), and DSP output 8 (output to Taiden system).
   2. Overflow Mix shall always output to DSP output (record output), and conditionally to DSP
      output 2 (speakers located in Hallway), as described in Section C below.
   3. Privacy Mix shall conditionally output to DSP output 2 (speakers located in Hallway), as
      described in Section C below.

C. Audio and Video Overflow
   1. Audio overflow to Hallway surrounding Council Chambers shall be controlled by touch
      panel. Touch panel shall have option to choose whether Hallway speakers play Overflow
      Mix, Privacy Mix, or silence, and maintain a display of which mix Hallway speakers are
      playing at any given time.
   2. When system is shut down via touch panel, sound mix sent to Hallway speakers shall
      revert to silence.
   3. Volume control in Hallway shall control volume of speakers in Hallway only when Hallway
      speakers are playing Overflow Mix. If Hallway speakers are playing Privacy Mix or
      silence, volume control in Hallway shall be disabled.
D. Touch Panel Configuration
1. Touch panel shall have ability to turn system on and off, select from all video inputs, and select whether Hallway speakers play Overflow Mix, Privacy Mix, or silence.
2. When system is turned on at touch panel, flat panel displays in Council Chambers shall turn on. Flat panel display in hallway shall remain off.
   a. When Overflow Mix is selected for Hallway speakers, flat panel display in Hallway shall also turn on.
   b. When Privacy Mix or silence is selected for Hallway speakers, flat panel TV in Hallway shall remain off or be turned off.
3. Whenever system is on, touch panel shall maintain a display of which mix Hallway speakers are playing at all times and allow user to choose between them, with an individual button for each mix.
4. When system is turned off at touch panel, all flat panels displays shall turn off.
5. All options on touch panel shall be available in one screen view, with no page flips.

3.6 FIELD QUALITY CONTROL

A. Field Tests:
   1. Contractor Testing:
      a. After completion of installation, but before commissioning by Consultant, perform following:
         1) Verify all labeling for correctness.
         2) Conduct system tests and make necessary corrections for proper system operation including, but not limited to following:
            a) Output level uniformity.
            b) Polarity.
            c) Shock, strain excited hum, and oscillation.
            d) Clipping, hum, clicks, pops, noise, and RFI in all system configurations with or without input signal.
            e) Absence of shorts between system conductors, system conductors and conduit, and between AC neutral and insulated ground conductors.
            f) Every input and output is balanced.
            g) Speaker line impedances are correct.
            h) Loose parts and poor workmanship.
            i) Data network cables and fiber optic cabled conform to TIA/EIA performance standards.
         3) Sweep speaker systems with high-level sine wave noise source. Correct causes of buzzes or rattles related to speakers or enclosures. Notify General Contractor and Consultant of external non-system causes of buzzes or rattles.
         4) Aim speakers as shown on drawings and verify coverage.
         5) Perform initial adjustments including system gain structure as suggested by manufacturer and verification tests that all systems are functional and balanced.
      b. Complete documentation and submit to consultant ten (10) business days prior to Commissioning.
         1) Written report certifying in installation conforms to requirements stated herein is complete in all respects and is ready for commissioning.
         2) Electronic copy of:
            a) Operation and Maintenance Manual
            b) As-built drawings
            c) Settings
            d) Equipment lists with serial numbers

B. Field commissioning:
   1. Consultant commissioning:
a. Coordinate commissioning schedule with Consultant a minimum of three weeks before. Verify site shall be quiet and accessible to all areas where there are systems.
b. Have hard copy of as-built drawings.
c. Have loose equipment (microphones, extension cables, etc.) on site at time of commissioning.
d. Project engineer shall assist Consultant in commissioning of all systems.
e. Provide following test equipment in good working order:
   1) Laptop computer software, and interfacing adapters for interfacing with microprocessor controlled equipment in system.
   2) 1/12 octave, real-time audio spectrum analyzer with SPL meter and precision microphone.
   3) Digitally generated random pink noise generator; 20 Hz-20 KHz, minimum two (2) hour repetition rate.
   4) Audio impedance meter; 20 Hz - 20 KHz, 1 Ohm - 50 Ohm, minimum three (3) frequencies and ten percent (10%) accuracy.
   5) Digital Volt-Ohmmeter; one percent (1%) accuracy.
   6) Function generator; variable frequency, 20Hz - 20 KHz.
   7) Oscilloscope; 10 MHz bandwidth, 1 mV/cm sensitivity.
   8) Polarity checker; mic, line, loudspeaker levels.
   9) Digital video signal generator with VGA, HDMI and DVI connectors.
   10) Quantumdata 780 video test instrument with network analyzer and ACA passive monitoring.
   11) Necessary chargers, cables, test leads, adapters, and other accessories for test equipment.
   12) Tools and spare parts for adjusting and making corrections to system.
   13) Category cable and connector tester similar to Fluke Networks DTX-1800.

2. The system commissioning test shall be supervised by Consultant and shall consist of the following:
   a. Take a physical inventory of all equipment on site and compare to equipment lists in the contract documents.
   b. Review operation of all system equipment.
   c. Both subjective and objective tests will be required by Consultant to determine compliance with Specifications.
   d. In the event the systems are not completely installed, extensive adjustments are required, or defective equipment must be repaired or replaced, commissioning will be suspended. Another date and time will be scheduled to complete commissioning. Consultant’s time and expenses for return trip shall be paid by Contractor prior to Consultant’s return.
   e. A punch list shall be created by Consultant and sent to Contractor for correction.

C. Training
   1. Contractor shall provide operation and maintenance training of systems by a qualified instructor or equipment manufacturer for personnel designated by Owner.
   2. Training shall be after systems are operational, but before commissioning.
   3. Provide two (2) digital video recordings of the training.

3.7 SYSTEM ACCEPTANCE

A. All punch list items shall be corrected prior to acceptance.

B. Within thirty (30) days of commissioning, provide to Consultant:
   1. Updated, uncompiled software source coded and configuration files.
   2. Include PDF system documentation including, but not limited to:
      a. Table of contents
b. Written warranty  
c. System operation procedures  
d. Updated shop drawings  
e. As-built drawings  
f. List of equipment with make, model, and serial number  
g. Equipment operation and service manuals  
h. Single line riser diagram  
i. Instruction video (digital format)  

C. After Consultant’s review and approval, Contractor shall prepare and submit to Architect system documentation as required in Section 1 (one) of Specifications.

3.8 CLEANUP AND REPAIR

A. Remove all refuse and rubbish from Contractors installation about premises daily and leave relevant areas and equipment clean and in an operational state. Repair any damage caused to premises by installation activities at no cost to Owner.

3.9 PROTECTION OF WORK

A. During installation, and up to date of final acceptance, protect finished and unfinished work against damage and loss. In the event of such damage or loss, replace or professionally repair such work at no cost to Owner.

END OF SECTION
1. Remove existing device. Install indicated device in same location. Existing back box may be reused.
3. To power.
4. Remove equipment & cabinet. Install reused amplifier in new cabinet. Turn remaining equipment over to owner.
5. Remove projector, screen, & associated cables. Patch as necessary.
6. Mount device behind TV.
7. Coordinate exact location with owner.
8. Mount tablet such that opened door does not block view.

Where speakers are already installed, remove existing speakers & backboxes & replace with indicated speakers. Patch as necessary.

- Existing, hatching applied to any device denotes "existing, do not replace".
- All cabling shown on drawings to be replaced.
**Symbol Legend**

- **E**: Existing Location
- **B**: Brown Device & Cover
- **S**: Symbol Type
- **W**: Symbol Type
- **#**: Abbreviation
- **M**: Abbreviation
- **H**: Abbreviation
- **S**: Abbreviation

**Audio-Video System Equipment List**

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<th>Description</th>
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**General Sheet Notes**

- **AV Contractor Notes**: AV Contractor agrees to & is responsible for programming of programming components to make system function properly. Schedules and notes are not intended for contractor use.
- **Cable Management**: All cables running through plenums must be neatly dressed and kept out of the way. Cables running through conduit must be concealed. The use of raceway & wood trim is required except for high voltage (110 VAC) to be done by licensed electrical contractor.
- **Power Strips**: Power strips, UL listed, must be installed in accordance with National Electrical Code. All power strip wiring must be done by licensed electrician.
- **Audio Design**: Secure all new loudspeaker enclosures with seismic restraints. Mount speaker enclosures in suspended tile ceilings on tile bridges.
- **Video Design**: All video cables; speaker cables; antenna cables. Attic cabling must be neatly dressed and kept out of the way.
- **Equipment Cabinet**: New equipment cabinets must be installed in accordance with National Electrical Code. All equipment cabinet wiring must be done by licensed electrician.
1. WHERE SPEAKERS ARE ALREADY INSTALLED, REMOVE EXISTING SPEAKERS & BACKBOXES & REPLACE WITH INDICATED SPEAKERS. PATCH AS NECESSARY.

2. E=EXISTING. N/C= NO CONNECTION. HATCHING APPLIED TO ANY DEVICE DENOTES "EXISTING, DO NOT REPLACE".