

**SECTION 27 41 00
DRINK HOUSTON
SOUND-LGHTING-VIDEO SYSTEMS**

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. General Conditions and Division-1 Specifications apply to work of this Section.
- B. Contractor shall direct all compliance concerns to Architect of Record:
Hermes Architects
1177 West Loop South
Houston, TX 77027
(713) 785-3644
- C. All requests for information concerning Drink Houston SLV system:
Rick Roberts, Project Consultant
CTI
10815 Seaboard Loop
Houston, TX 77099
(800) 597-4999 voice
(713) 575-8890 Fax

1.2 WORK INCLUDED

- A. The contractor shall provide and install a complete working system including but not limited to speakers, amplifiers, DSP, racks, projectors, truss, lighting... necessary to provide for the functions and requirements specified herein.
- B. Provide and install all cabling, connectors, terminal blocks, and similar devices required for work under this section.
- C. Provide engineering, testing, materials, components, programming (lighting and sound) necessary to provide a complete operable system.
- D. Provide and install all mounting hardware required to hang projectors, screens, speakers, truss, and lighting throughout the facility.

1.3 EQUIPMENT SUPPLIERS

- A. Equipment and materials shall be provided by a factory authorized distributor to ensure proper specification adherence, final connection, test, turnover, warranty compliance, and service.
- B. The specification is based on the equipment of manufacturers who have been approved by the owner and the manufacturers herein named shall be considered as meeting the requirements of this specification. For all items which are identified by part number and manufacturer the performance specifications which are published in the most recent manufacturers data sheet available at the time of bidding this project shall be applicable to the present work as though fully written out herein.
- C. Equipment shall be new. B stock item are not acceptable unless submitted in writing and approval is granted in writing by the Owner.

1.4 SERVICE AVAILABILITY

- A. The contractor shall maintain sufficient replacement parts on hand to ensure rapid replacement of any system component that should fail.
- B. The contractor shall have technicians trained on the system to service the system should service be needed.

- C. The contractor shall be capable of guaranteeing response time within forty-eight (48) hours of service calls, 24 hours a day, 7 days a week to service the system. Parts and technicians, as required by items A and B above shall meet this response time criteria.

1.5 JOB CONDITION

- A. Work shall be performed in accordance with all applicable requirements of all governing codes, rules, and regulations.
- B. All equipment shall be listed by Underwriters Laboratories. (U.L.)
- C. The contractor shall ensure that all equipment and installation materials are protected from theft, physical damage, electronic damage, dust, dirt, moisture, and shock from receipt to installation.
- D. The contractor shall provide all necessary insurance, bonds, or other instruments as required.

1.6 TRAINING OF PERSONNEL

- A. The contractor shall provide training for all staff on the AV system as required by the Owner. The training shall be for all equipment and devices furnished in the specifications and all contract documents.
- B. The training shall be provided by a licensed representative of the AV contractor and shall include all instruction, tools, and equipment necessary for installation, service, maintenance and programming of the equipment and devices.
- C. All costs and arrangement for the training including transportation, lodging and meals during training, also any tools and equipment required shall be included in the contract.

1.7 DOCUMENTATION AND SUBMITTAL

- A. Contractor Qualifications - Provide as part of Bid Documents
 1. Years in business – Minimum 5 continuous years experience in the installation of mult-format AV systems. Provide a brief company history of similar projects.
 2. Employee Qualifications – The contractor shall have a full time technical staff that can fulfill the complete scope of work and service requirements necessary for this project.
 3. Project List – Provide a detailed listing of previous projects that are similar in scope to Drink Houston. Include the project name, design overview, company name, contact, address, telephone number, and completion date.
 4. Authorized Dealership List – Contractor must be a factory-authorized dealer for all of the primary equipment designed and installed into to the project. Contractor shall provide a list of all manufacturers he is authorized as a dealer.
 5. Control and Lighting Systems Programmers – Provide the names of the factory trained and certified SLV system programmers that will be responsible for Drink Houston SLV System. Independent programmers will be considered if they are certified by the manufacturer.
- B. Provide a statement summarizing any pending litigation involving any officer or principal of/or the bidding company, the nature of the litigation and what affect the litigation may carry as it relates to this work in the worst case scenario. Non-disclosure of this item, if later discovered may result, at the owner's discretion, in the contractor bearing all costs attendant with the transfer of the work to a new firm and any cost related to associated delays in the progress of the work.
- C. Submit personnel résumé's indicating in detail that the contractor has competent engineering, installation, service and maintenance personnel and facilities with reasonable stock of service parts. Contractor shall submit a warranty statement certifying that they are capable of conforming to specified warranty requirements.
- E. Contractor shall maintain on staff certified programmers for each system to be installed. Proof of such shall be presented at time of bid. Failure to do so may disqualify bidder from this project bid.

- F. No less than thirty (30) days prior to jobsite acceptance testing, submit three (3) preliminary copies of each of the following manuals prior to, and as a requirement of, Owner acceptance of the work of this section:
1. Equipment operating instructions: complete comprehensive instructions for the operations of all contractor fabricated devices and equipment items provided as part of the work of this section.
 2. Systems operating instructions: complete instructions for the operations of the systems provided as part of the work of this section.
 3. Manufacturer's original operation instruction and service manuals. All brochures, manuals and service sheets published by the manufacturer(s) of the equipment for systems checkout and acceptance tests.
 4. **A list of model and serial numbers for all equipment installed in the project. Provide this in each copy of the operations manual and in electronic spreadsheet form (Microsoft Excel) on CD.**
- G. Project Documentation Requirements
1. Drawings – Produce all drawings in accordance with format specified by the Architect and accepted AV standards. All drawings shall be produced using the latest Architects Backgrounds. The only acceptable formats are AutoCAD or AutoCAD LT.
 2. One-Line – Each one line drawing will include all system equipment by device ID, signal flow, signal type, and signal routing. AutoCAD or Stardraw will be accepted.
 3. Plan Drawings – Submit plan drawings for locations of all devices. Include all tech power and electrical service required.
 4. Reflected Ceiling – Submit RCP for all devices installed in the ceiling or overhead.
 5. As Built AV Rack Elevations – Submit all equipment specified for installation in Drink Houston. Identify all equipment.
- H. Provide on the job training in the operation of the electronics systems for personnel designated by the Owner, during the first thirty (30) calendar days of operation. In general, training must be able to start a minimum of five (5) working days prior to a system's completion date. Project training periods shall be scheduled to occur during general business hours.
- I. Substitutions shall be submitted in the following manner. Cut sheets from the specified product shall be submitted with cut sheets from the requested substitution at time of bid. The cover sheet shall have an overview of all requested product substitutions and the specified product. Submit original or originally printed cut sheets only for the substitution process.

1.8

1.9 DELIVERY, STORAGE AND HANDLING

- A. Contractor shall bear the costs of all shipping to the site, and of all usual and unusual storage requirements. Make appropriate arrangements, and coordinate with authorized personnel at the site, for the proper acceptance, handling, protection, and storage of equipment so delivered.

1.10 WARRANTY

- A. Warranty Period: Warrant all of the work of this section to be free from defects in materials and workmanship for period of twelve (12) months from the date of Owner acceptance or from the date of first usage of the work by Owner personnel. The first usage date shall be agreed to in writing by the owner and contractor within five (5) working days of first usage. Component warranty service shall apply to repairs only made necessary by normal component wear and proper component usage. The warranty service does not apply to any Owner furnished equipment and labor. Transportation of warranty substitutes, or test systems, equipment, devices, material, parts and personnel to and from the jobsite shall be at no expense to the Owner during the warranty period.
- B. Activate all manufacturers' equipment warranties in Owner's name to commence on the date of acceptance.

- C. Warranty operations: Contractor shall provide the Owner with a telephone number, which, during normal working hours, or during non-standard working hours will be answered by a professional telephone answering service. In the event of a malfunction, the pre-designated owner's representative(s) will call the contractor's warranty service telephone number and request service. The contractor will respond to the Owner's initial service request within twenty-four- (24) hour=s time. The contractor's initial response shall consist of qualified personnel calling the facility and reviewing the Owner's service request. Contractor's service personnel shall then initiate a program of repair to correct the service problem as dictated by the Owner.
- D. Warranty service calls made by telephone to the Contractor or his designated representative shall hereby be defined as proper notification that warranty service is required.
- E. Inventory: Contractor shall maintain a reasonable inventory of all parts necessary to provide service according to the specified warranty requirements.
- F. Owner Provided Equipment Warranty: Drink Houston will have a list of equipment that will be integrated into the system. There is no warranty for the Owner Provided Equipment however the contractor is responsible for ensuring that the equipment is properly connected to the system. The contractor will provide a written estimate to Drink Houston for any repairs or replacement of the owner provide equipment.

1.11 SYSTEM DESIGN

- A. This specification defines 7 areas of operation: Drink, 8.0, Rain, Karaoke Bar, Corner Bar, Main Entrance, and Restrooms.
- B. There shall exist, user interfaces for all above mentioned areas of operation.
- C. All amplifiers, DSP's, video routers, network players shall be rack mounted.
- D. The user interfaces will be able to route all signals with the DSP's to any and all areas.
- E. All audio signals will be initiated from the DJ booths.
- F. AV contractor will provide fire mute for the audio system.
- G. Contractor shall compile all data needed (room names, room numbers, drawings with station locations, etc.) to program system. Contractor shall meet with the Owner prior to beginning system programming to get preliminary control system requirement. System programming shall not be limited to features specified in this Specification.
- H Since Drink Houston is an operating nightclub, the use of owner provided equipment will be utilized. The owner provided equipment cannot be removed until the final closing night of the existing Drink Houston and needs to be operational for the Grand Re-Opening of Drink Houston which is from a Sunday 2am to Thursday 4pm, a total of 64 hours.
- J. All programming will have to be done from the final closing date to the Grand Re-Opening date.
- K. Coordinate with IT for network.

1.12 SYSTEM DESCRIPTION

A. DRINK

Drink Nightclub is a high energy dance club utilizing state of the art video, lighting, and pre-recorded music. There will be a DJ nightly using mp3 music and music videos played with Rane Serato software from the audio computer. There is also a lighting computer that will control all the lighting on the truss as well as some architectural lighting utilizing Martin Light Jockey. The lighting computer will be used for the control interface daVinci. All audio system electronics will be located in the DJ booth for the convenience of the DJ. There will

be 4 video screens and 4 projectors. Video signal will be sent to the video router in the main equipment rack and routing will be controlled RS232 with the control interface daVinci. CobraNet will be used for the audio signal to the main equipment rack due to distance limitations. A booth speaker monitor will be used.

B. 8.0

8.0 Nightclub is a high energy dance club utilizing state of the art video, lighting, and pre-recorded music. There will be a DJ nightly using mp3 music and music videos played with Rane Serato software from the audio computer. There is also a lighting computer that will control all the lighting on the truss as well as some architectural lighting utilizing Martin Light Jockey. The lighting computer will be used for the control interface daVinci. All audio system electronics will be located in the DJ booth for the convenience of the DJ. There will be 2 video screens and 2 projectors. Video signal will be sent to the video router in the main equipment rack and routing will be controlled RS232 with the control interface daVinci. CobraNet will be used for the audio signal to the main equipment rack due to distance limitations. A booth speaker monitor will be used.

C. RAIN

Rain Nightclub is a high energy dance club utilizing state of the art lighting, and pre-recorded music. There will be a DJ nightly using mp3 music played with Rane Serato software from the audio computer. There is also a lighting computer that will control all the lighting on the truss as well as some architectural lighting utilizing Martin Light Jockey. The lighting computer will be used for the control interface daVinci. All audio system electronics will be located in the DJ booth for the convenience of the DJ. A booth speaker monitor will be used.

D. CORNER BAR

Corner Bar is a low key nightclub with lighting, and pre-recorded music. There will be a DJ nightly using mp3 music played with Rane Serato software from the audio computer. There is also a lighting computer that will control all the lighting on the truss as well as some architectural lighting utilizing Martin Light Jockey. The lighting computer will be used for the control interface daVinci. CobraNet will be used for the audio signal to the main equipment rack due to distance limitations. All audio system electronics will be located in the DJ booth for the convenience of the DJ.

E. KARAOKE BAR

Karaoke Bar is just as the name says. Karaoke Bar will be utilizing all the existing equipment with no new. There is a live audio console, karaoke VJ electronics, Mach Audio speakers, QSC amps, Mach DSP, floorplates, LCD's, LED Lighting, wired, and wireless microphones.

F LOBBY/ENTRANCE

The main entrance will have 5 wall mounted 42" LCD's. The LCD's are tied into the matrix video router with content from the network players.

G. RESTROOMS

The restrooms will have 4 speakers in each. The source audio will be selected on the Control Interface.

PART 2 PRODUCTS

2.1 GENERAL EQUIPMENT AND MATERIAL REQUIREMENTS

- A. All equipment shall be new and unused with the exception of the Owner Provided Equipment. All components and system shall be designed for uninterrupted duty.
- B. All equipment, materials, accessories, devices and their facilities covered by this specification or noted on contract drawings and installation specifications shall be the best suited for the intended use and shall be

provided by a single manufacturer or if provided by different manufacturers, recognized as compatible by both manufacturers.

2.2 SOUND – VIDEO – LIGHTING EQUIPMENT

A. See Equipment List for Bid

PART 3 - EXECUTION

3.1 SYSTEM PROGRAMMING

- A. Contractor shall compile all data needed (room names, room numbers, drawings with station locations, etc.) to program system. Contractor shall meet with the Owner prior to beginning system programming to get preliminary control system requirement. System programming shall not be limited to features specified in this Specification. The contractor agrees to deliver to the owner, as part of the as built electronic documentation, all remote control system, DSP, or other software based programming files as part of the scope of work.

3.2 EQUIPMENT

- A. Equipment Rack Installation: All equipment within each cabinet racks shall be logically arranged for accessibility of convenience and maintenance. Equipment shall be mounted using rack ears installed by the manufacture. Custom shelves by Middle Atlantic, RSH series, are acceptable for equipment that does not have a rack mount kit available. Equipment in custom shelves shall be securely attached to the shelf.
- B. Cabinet, console, and panel faces, including drawers shall be same color.
- C. Wiring within console, racks and cabinets shall be installed to conform to standard broadcast and sound engineering practices as described in the referenced Broadcast Audio Equipment for AM, FM, Television and in Sound System Engineering. Wiring shall be cabled, laced and securely fastened in place so that no weight is imposed on any equipment, control switches, or terminals. Wires carrying audio power shall be shielded. Input and output circuits and terminals shall be installed to provide separation necessary for proper operation. Wires shall be identified by number and chart.
- D. Conductor shields for each system shall be grounded at one location only. Grounding shall be done within console and cabinet racks. There shall be no metallic connection between systems. Conduits for system and 120 volt AC system shall be bonded together at console and all cabinet racks.
- E. There shall be 4'-0" of slack cable; cable shall not be left on floor, but neatly dressed in main backboard or above racks in ladder tray.
- F. Panels shall be black anodized aluminum brushed in the direction of the aluminum grain. Lettering shall be 1/8" engraved with white paint fill. Panels with connectors that are not square to the panel will not be accepted.
- G. Connectors that are exposed to elements (including significant humidity) or are not in climate controlled areas shall be gold plated for corrosion resistance. This includes all areas out of doors, patios and barns.

3.3 CABINET MAKE-UP

- A. Lines and cables within cabinets shall be carefully cable-strapped. Cables shall be formed in rectangular configuration. Each cable shall be properly numbered in numerical order and shall maintain same number throughout site.
- B. Conductors shall be color-coded and individual cables shall be rung out, and tagged with code markers equal to W.H. Brady Co. or E-Z Code wire markers. Wire markers shall be self laminating or clear heat shrink tubing shall be used over each label to ensure permanence. Each cable index strip shall be typed and installed on terminal cabinet door. Each index strip shall be covered with Zellerbach # R125, or equal, typed on "as-built" drawings.

- C. Terminations and connections throughout system shall be UL listed approved connectors, appropriate for the use intended. Connections to equipment and cables shall be phoenix type or plug-in type (XLR, RCA, 3@, 1/8@, etc.). Balanced connectors shall be utilized whenever possible. Cables shall be identified as to buildings and rooms served, and terminated in all terminal cabinets and backboards.
- D. Cable distribution rings for inside wiring cable and distribution cable shall be Dracon Industries #10941-000, 10942-000 or 1094-000 size as required, or approved equal.

3.4 OPERATION

- A. Contractor shall properly instruct the Owner and other persons designated by the Owner, in correct operation of system.

3.5 GENERAL PERFORMANCE REQUIREMENTS

- A. Reproduction of speech and music shall be clear, high fidelity, and with all frequencies within range of system faithfully reproduced at with no detectable noise, hum, or distortion.
- B. Provide 50% spare lamps for the projectors. Projector lamps shall be warranted by the Contractor for a period of ninety (90) days after Owner acceptance or for the period covered by the projector manufacturer, whichever is longer. Non consumable parts of the projector shall be covered for the contracted one (1) year period.

3.6 FIELD QUALITY CONTROL TESTS

- A. Maintain a competent supervisor and supporting technical personnel, acceptable to the Owner during the entire installation. Change of supervisor during the project shall not be acceptable without prior written approval from the Owner.
- B. Before connecting any equipment to electrical power outlets, measure and record the A.C. voltages between hot, neutral and ground to verify correct outlet polarity. Record all findings.
- C. Upon completion of the system installation, the contractor shall be responsible for the system adjustments, including but not limited to equalization, delay settings and gain structure of the system.
- D. Physical inspection of the rack and field wiring shall be done by the owner to insure neat and orderly installation practices have been upheld.
- E. Verify the performance parameters of the individual systems following established professional procedures. Document all acceptance testing, include the date the tests were performed, who performed the tests and the equipment used in testing. Where discrepancies are found in testing go back and fix the discrepancy and retest all affected areas and/or systems. Document what was done to fix the problem and the new test results, date and persons responsible for fixing and retesting.
- F. For audio testing the contractor shall follow EIA Standards RS160 and RS219. Make all necessary corrections to bring systems into compliance.
- G. Measure all speaker line impedance at 250, 500, 1k and 2k Hz with loudspeakers connected to each line. Turn all volume controls to maximum setting before testing.
- H. Check phasing on all speakers in every zone. Correct any variances for the entire zone and then retest.
- I. The process of testing and equalization of the systems may necessitate the moving, re-aiming, adjusting or reconfiguring of system components. This shall be done at the Owner or consultants request with no additional claim for payment.
- J. Test all line and microphone level signals for polarity and continuity.

- K. Verify all video signals utilizing forward and reverse sweep and balance, hum modulation, outlet levels at high and low channel of passband and a complete comparison of calculated values vs. observed values of tap outlets.
- L. Upon completion of the installation and all preliminary testing submit in writing all test results. Submit notification that the system installation is complete and in compliance with the contract documents and is ready for inspection by the Owners consultant.

3.7 TEST EQUIPMENT

- A. The contractor shall provide the following test equipment to be available for the Owner or Consultant at any time after the substantial completion of the project.
 - 1. Digital Multi-meter
 - 2. Real time Spectrum Analyzer (handheld or computerized is acceptable)
 - 3. Laptop computer with all software required to make adjustments to any component of the system.
 - 4. All cables, ladders, tools and adaptors for system programming, inspection, testing and acceptance.
 - 5. 1 technician familiar with the system to facilitate and required modifications required.

3.8 INSPECTION AND TEST UPON COMPLETION

- A. Checkout and final commissioning of the system shall be made by a factory-trained technician in the employ of a contractor of the products installed. In addition, factory trained technicians shall demonstrate operation of the complete system and each major component to the Owner.
- B. System field wiring diagrams shall be provided to the owner by the system contractor prior to installation.
- C. All materials and installation shall be guaranteed to be free of defects in material and workmanship for one (1) year after final acceptance of installation and test.
- D. Upon completion of the installation, four (4) copies of complete operational instructions shall be furnished, complete with record drawings. Instructions shall include part numbers and names, addresses, and telephone numbers of parts source. Maintenance manuals shall include serial numbers of all equipment installed in system. Final payment shall not be made until operational and maintenance manuals have been received.

END OF SECTION

