Date Issued: February 10, 2017 Invitation to Bid No.: 17-010

The City of Decatur will accept sealed bids for the following material, equipment and/or services.

Description: Princess Theatre – City of Decatur Projector and Sound System Upgrades

Bids must be received before: February 24, 2017 at 1:00pm

Return sealed bid to:

Regular Mail	Courier
City of Decatur	City of Decatur
Purchasing Department	Purchasing Department
P.O. Box 488	Third Floor
Decatur, AL 35602	402 Lee St., NE
	Decatur, AL 35601

I/We agree to furnish at the prices shown and guarantee that each item offered will meet or exceed all specifications, terms and conditions, and requirements listed. I herein affirm I have not been in any agreement or collusion among bidders in restraint of freedom of competition by agreement to bid at a fixed price or to refrain from bidding or otherwise. I have read and understand all terms and conditions of this bid.

_____	_____
Company Name	Authorized Signature
_____	_____
Mailing Address	Typed/Printed Authorized Name
_____	_____
City, State, Zip	Title
_____	_____
Contractor's License No. (Required)	Telephone
_____	
Email	

PRICE SHEET

Opening Date: February 24, 2017

Invitation to Bid No.: 17-010

Opening Time: 1:00pm

See Enclosed Price Table

Prices quoted in all bids for personal property shall be total delivered price.

- A bid bond **IS** required for this IFB.
- Delivery can be made _____ days or _____ weeks after receipt of order.
- Terms: _____ (Discounts offered in payment terms will be considered in the bid evaluation)
- Prices valid for acceptance within _____ days (not to be less than 180 days)
- The Contractor awarded the Performance Audio System package will be responsible for the removal of the existing sound system as directed by the Owner or the Owner's Representative.
- The Contractor will be responsible for Installation per the attached Schedule. This Schedule is provided informationally for Installation timing only.
- There will be a Pre-Bid Site Visit on **Monday, February 20, 2017 at 2:00 PM (CST)**. This is an optional meeting but it is recommended for Bidders to fully understand the scope of work. The Pre-Bid Site Visit will be located at:

  Princess Theatre
  112 2nd Ave NE
  Decatur, AL 35601
- All requests for explanation and/or information should be addressed to:

  HPM – Hoar Program Management
  Attention: Medora Gaddes
  mgaddes@hpmleadership.com

NOTE: FOR THIS BID TO BE CONSIDERED RESPONSIVE, ALL INFORMATION REQUESTED SHOULD BE SUPPLIED, AS APPROPRIATE OR THE ENTIRE BID MAY BE DISQUALIFIED. BID RESPONSE MUST BE IN INK OR TYPED WITH THE ORIGINAL SIGNATURE INCLUDED.

_____ _____

Bidder Signature Company

STANDARD TERMS AND CONDITIONS

IN ORDER TO SUBMIT A RESPONSIVE BID, IT IS VERY IMPORTANT THAT ALL TERMS AND CONDITIONS, SPECIFICATIONS AND INSTRUCTIONS ARE READ THOROUGHLY.

Bid response envelopes shall be properly identified on the front with the invitation to bid number, opening date and time. Each individual invitation to bid shall be submitted in a separate sealed envelope. Multiple bid responses submitted in the same envelope/courier package (that are not in separate envelopes properly identified) shall be rejected. The Purchasing Department assumes no responsibility for late bid responses that occur due to the U.S. Postal Service or private courier service.

Bid responses and signature page must be submitted on this form in ink or typewritten or the bid will be rejected. Submit this **original and (1) copy** of the original with your response.

For a "no-bid" response, return the signature page signed and marked "no bid". Non-response may result in removal from active bidders list.

The attached specifications are being provided to potential bidders as guidelines that describe the type and quality of equipment, supply, and/or service the City of Decatur is seeking to purchase. The bidder must indicate compliance or list exceptions to each specification item for consideration. Failure to comply with this provision could be cause for rejection of the bid.

Bid responses must be received in the office of the Purchasing Department not later than the date and time specified.

The Purchasing Department will not accept facsimile (fax) nor email transmissions of bids.

Changes or modifications of this Invitation to Bid are allowed only by written authority of the Purchasing Agent.

Non Appropriation of Funds: Continuation of any agreement between the City of Decatur and a bidder beyond a fiscal year is contingent upon continued legislative appropriation of funds for the purpose of this bid and any resulting agreement. Non availability of funds at any time shall cause any agreement to become void and unenforceable and no liquidated damages shall accrue to the City as a result. The City will not incur liability beyond the payment of accrued agreement payment.

Descriptive Literature: Reference to brand names and numbers is not restrictive, unless otherwise specified. Bids on equivalent items meeting the standards of quality indicated will be considered, providing the bid clearly describes the item offered and indicates how it differs from the referenced brands. Descriptive literature on any supplemental information necessary for comparison purposes shall be submitted with the bid or the Purchasing Agent may reject the bid for that item. Reference to literature submitted with a previous bid, or on file with the Purchasing Department will not satisfy this requirement.

The City of Decatur reserves the right to modify all or any portion of this Invitation to Bid when the best interest of the City is involved. The City reserves the right to award this bid to a single vendor or multiple vendors when in the best interest of the City. The City reserves the right to award parts of this bid or to reject all bid submissions.

The City of Decatur reserves the right to seek clarification of bid responses from vendors submitting responses.

The City of Decatur is exempt from all Federal, sales and use taxes.

All bidders shall maintain such insurance as will protect bidder and the City of Decatur from claims under Workman's Compensation Acts and from claims for damage and or personal injury, including death, which may arise from the operation and/or fulfillment of the resulting contract of this Invitation to Bid. Insurance shall be written by companies authorized to do business in Decatur, Alabama. Evidence of insurance shall be furnished to the City of Decatur Purchasing Department with submitted bids when requested.

Any individual, company, or corporation doing business with the City of Decatur must possess and show proof thereof all proper licenses and/or proper certifications required by Federal, state and local statutes and regulations prior to award when requested.

The City of Decatur reserves the right to terminate any contract resulting from this bid for just and reasonable cause whereby it appears to be in the best interest of the City. The City shall give the Contractor 90 day's written notice of termination.

The successful bidder agrees, by entering into this contract, to defend, indemnify, and hold the City of Decatur harmless from any and all causes of action or claims of damages arising out of or related to bidder's performance under this contract.

The successful bidder shall abide by all Federal, State, and Local Statutes, laws, regulations, and ordinances. Including but not limited to a current business license and remittance of sales tax owed to the City.

A Bid Bond or a certified check in the amount of five percent (5%) of the price bid, or $10,000, whichever is least, payable to the City of Decatur, must accompany each bid. Performance Bond and Payment Bond, each in the amount of one-hundred percent (100%) of the bid amount, will be required of the successful Bidder.

An electronic version of this bid is available on the City's website at www.decaturalabamausa.com or by emailing mgaddes@hpmleadership.com. In order to decrease the evaluation time and insure award by the award date please enter your responses in the electronic version if possible, and return it with a hard copy in your bid response package.

The hard copy of the invitation to bid on file in the City of Decatur Purchasing office shall serve as the master document. Any alterations, deletions, additions or other changes that materially change the intent of the bid could be considered grounds for rejection of the bid response.

Exclusion of the electronic files in a bid response is not a basis for rejection.

A BID RESPONSE MAY BE REJECTED IF:

- Bids improperly submitted or identified
- Bid bond not included
- Bid not signed or not original signature
- Requested information, or documentation not submitted with bid
- Failure to acknowledge receipt of addendum with bid
- Material alteration of the master document
- Invitation to bid number not on face of envelope
- Received late
- Bid response not on original form
- Bid not in ink or typed
- Proper licensing not included/provided as required by law
- Include current license number on the bid

Notice: As a condition of contract, grant or incentive performance with the City of Decatur, compliance with the requirements of the Beason-Hammon Alabama Taxpayer and Citizen Protection Act must be provided. Please enter the name of your company and your name and complete the affidavit below. Your signature must be notarized.

BUSINESS NAME: _____
APPLICANT'S NAME: _____

E-VERIFY AFFIDAVIT

I am the applicant listed above. In my capacity as _____ of the business entity listed above, I do hereby execute this affidavit on behalf of the business listed above and, by executing this affidavit, I verify that business' compliance with Section 31-13-9 of the Code of Alabama, 1975, stating affirmatively that it does not knowingly employ, hire for employment or continue to employ an unauthorized alien. Further, the business has registered with and is participating and will participate during the performance of any contract with the City in the federal work authorization program known as "E-verify" web address https://e-verify.uscis.gov/enroll , operated by the United States Citizenship and Immigration Service Bureau of the United States 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 applicable provisions of Alabama's Immigration law.
The undersigned further represents that, should the business employ or contract with any subcontractor(s) in connection with the physical performance of services pursuant to the contract with the City, it will secure from such subcontractor(s) verification of compliance with Section 31-13-9 of the Code of Alabama, 1975, in a form substantially similar to this affidavit. The Business further agrees to maintain records of such compliance and provide a copy of each said verification on request of the City.

_____
E-verify Employment Eligibility Verification User Identification Number

_____
Applicant

Sworn to and subscribed before me on this the _____ day of _____, 20_____

_____
Notary Public

My Commission Expires: _____

Section 34-8-8

Copy of chapter to be included in plans of owners, architects, and engineers; inclusion of license number on bid.

(a) All owners, architects, and engineers preparing plans and specifications for work to be contracted in Alabama pursuant to this chapter shall include in their invitations to bidders, including but not limited to all public and private advertisements, and their specifications a copy of this chapter or the portions thereof as are deemed necessary to convey to the invited bidder, whether he or she is a resident or nonresident of this state and whether a license has been issued to him or her or not, the information that it will be necessary for him or her to show evidence of license before his or her bid is considered. Any person including an owner, architect, or engineer who violates this section shall be guilty of a Class B misdemeanor and shall for each offense of which he or she is convicted be punished, fined, or both, in accordance with Sections 13A-5-7 and 13A-5-12.

(b) All owners, architects, and engineers receiving bids pursuant to this chapter shall require the person, firm, or corporation to include his or her current license number on the bid. The owner, architect, and engineer shall reject all bids that do not contain the current license number of the general contractor submitting the bid. All persons who violate this subsection shall be guilty of a Class C misdemeanor and shall for each offense for which he or she is convicted be punished, fined, or both, in accordance with Sections 13A-5-7 and 13A-5-12.

(Acts 1935, No. 297, p. 721; Code 1940, T. 46, §79; Acts 1959, No. 571, p. 1429; Acts 1996, No. 96-640, p. 1013, §1.)

CITY OF DECATUR

THE PRINCESS THEATRE

PHASE I – PROJECTOR AND SOUND SYSTEM UPGRADES

NOTE: The specifications for the Performance Audio System Package and the Cinema and Presentation Video System Package are included in this document. Bidders may choose to bid only one package or to bid both packages. If the Bidder chooses to only bid one package, it is crucial that the Bidder is aware of how the two systems interface with each other. All specifications are provided for this reason.

Any acoustical installation will be bid separately at another time/date.

HOAR PROGRAM MANAGEMENT

QUANTUM TECHNOLOGIES, INC.

QUANTUM
TECHNOLOGIES, INC.

HOAR PROGRAM MANAGEMENT

PROJECT:	PHASE I:
Princess Theatre – City of Decatur	Projector and Sound System Upgrades
PACKAGE:	
Performance Audio System	

NOTES:

The design of Performance Audio, Cinema Video and Audio is to be bid as follows:

1) Audio Base Bid, to include all materials, labor and fees to install a Performance Sound System as shown on "PRINCESS THEATER AUDIO ONE LINE DIAGRAM, DRAWING 1 of 6" and per specifications.

$_____

2) Alternate #1, Deduct from Base Bid, to use JBL VRX Line Array components, see Note 1 on "PRINCESS THEATER AUDIO ONE LINE DIAGRAM, DRAWING 1 of 6" and per specifications.

$_____

3) Alternate #2, Add to furnish and install the Cinema 5.1 Surround Sound, as shown on "PRINCESS THEATER AUDIO ONE LINE DIAGRAM, DRAWING 2 OF 6" per specifications.

$_____

4) Cinema Video, Add to furnish and install Cinema Video system per "PRINCESS THEATER VIDEO AND CONTROL ONE LINE DIAGRAM, DRAWING 3 OF 6" and as per specifications.

$_____

PART 1-General

1.01 SUMMARY

General: This section specifies the audio system. The audio system will provide for the mixing, processing, and amplification of voice and program signals to the speaker systems. Comply with all Contract Documents, including the project schedule. Building-wide communication system is by Electrical Contractor.

A. Statement of Work: The work of this section includes, but is not necessarily limited to the following:

1. Furnish, install, configure and test a complete and operational Performance and Cinema sound system for Princess Theater, Decatur, Alabama as specified herein. The Performance sound system shall include a voice, music and program playback system. The Cinema sound system shall include a 5.1 Surround audio system. The Performance sound system will include inputs for Cinema playback and is to be used as the Left, Right and Subwoofer portion of the Cinema system as well as Performance sound system.

2. General requirements for sound systems:
   a. The Theater shall be provided with a complete Performance system including, but not limited to, mixer, processors, microphones, speakers, and speaker mounting apparatus.

   b. The Theater shall be provided with the remaining components to complete the Cinema sound system including, but not limited to, processors, speakers and speaker mounting apparatus.

   c. Unless noted otherwise on the drawings, the work shall include everything necessary or incidental to complete the installation including all electronic equipment, transducers, cable, wire, mounting equipment, power supplies, distribution equipment, isolation transformers, connectors, etc. The existing AC power for the sound system shall be reused as much as feasible and additional power may be required, as determined by the Architect.

   d. The Contractor shall provide comprehensive training for the system operation. Training shall be hands-on using the installed systems.

   e. The Contractor shall provide system schematic one-line drawings as part of the submittal documents.

   f. The Contractor shall be a factory-authorized dealer for the audio equipment that he submits for approval.

1.02 SCOPE OF WORK

A. The Contractor shall provide equipment that, where required, shall conform to the applicable requirements of the Underwriter's Laboratories, Inc., local codes, the National Electrical Code and any other governing codes.

B. The Contractor shall provide a one-year warranty parts, materials and labor.

C. The Contractor shall provide a system configured and installed for simplicity of operation and low maintenance, with user-friendly controls.

D. The Contractor shall provide a minimum of 2 (two) training sessions to Princess Theater personnel. A minimum of 2 hours per session is required.

1.03 FUNCTIONAL PERFORMANCE

A. General: The audio system shall be a complete system for amplifying sound signals from microphones and media source equipment and distributing them to loud speakers at the designated locations.

B. Components and system features and functions for the Performance and Cinema shall include, but are not limited to, the following:

1. Meet the following performance parameters as measured in 1/3 octave bands:
   a. From 40Hz to 10kHz, flat within plus or minus 3 dB.

   b. Above 15 kHz, slope down along an approximate 3dB/octave slope to 20kHz.

2. Sound pressure levels at 2 kHz per octave/band shall not deviate more than plus or minus 3dB.

3. When driven to maximum output, clipping shall first occur in power amplifiers.

4. No noise, hum, RFI pickup or distortion shall be audible under normal operating conditions.

5. Sound system shall reproduce program material at a level of 100dBA without audible distortion in all seating areas.

1.04 SUBMITTALS

A. General: Submittals shall have written approval of the engineer prior to commencement of work, fabrication and installation. Submit all information specified in accordance with the deadlines indicated. The engineer may request additional information. Submit six identical copies of all submissions.

B. The following submittals are required after project award, during the submittal period, prior to initiation of the installation process:

1. Fully detailed, line diagrams indicating proposed connections of all equipment, indicating make and model numbers of the equipment, and all cable labels.

2. Shop drawings of all connection panels and rack elevations.

3. Show location and type of all special receptacle boxes to be supplied and/or modified by the Contractor.

4. A list of test equipment, giving make and model numbers to be used for all tests and acceptance testing, in spreadsheet format.

5. Scale Floor plans (1/8’” = 1’-0”) indicating all equipment location and dimensions. Coordinate and show conduit entry locations within rooms.

C. After samples have been reviewed and approved, the Contractor shall deliver the approved equipment to the project site for installation.

1.05 QUALITY ASSURANCE

A. Electrical Component Standard: Provide work complying with applicable requirements of NFPA 70 “National Electrical code.”

B. EIA Compliance: Comply with the following Electronics Industries Association Standards:
1. Sound Systems, EIA-160.
2. Loudspeaker, Dynamic Magnetic Structures, and Impedance, EIA-299-A.
3. Racks, Panels, and Associated Equipment, EIA-310-A.
4. Amplifiers for Sound Equipment, SE-101-A.
5. Speakers for Sound Equipment, SE-103.
6. Microphones for Sound Equipment, SE-105.

C. UL Compliance: Comply with requirements of UL50 or ETL equivalent.

D. All installation practices shall be in accordance with, but not limited to, these specifications and drawings. Installation shall be preformed in accordance with the applicable standards, requirements, and recommendations for the Uniform Building Code, the National Electrical Code and all local authorities having jurisdiction. All installation work shall follow “standard broadcast wiring” and installation practices, as excerpted from “Recommended Wiring Practices,” Sound System Engineering, (2nd Edition), D. Davis, and performed to the highest standards of acknowledged industry practices.

1.06 DELIVERY, STORAGE AND HANDLING

A. Control handling and installation of hardware and equipment items that are not immediately replaceable, so that completion of the work will not be delayed by hardware or equipment losses, both before and after installation.

B. Prior to installation, protect exposed surfaces with material which is easily removed without marring finishes.

C. Deliver products in factory containers. Store in clean, dry space in original containers. Protect products from fumes and construction traffic. Handle carefully to avoid damage.

1.07 SCHEDULING

A. It will be the responsibility of the Contractor to coordinate the installation of the system to be compatible with the overall construction completion schedule

B. The Contractor will provide operating personnel with adequate training on the completed system, including at least two training sessions.

1.08 DESIGN CONSIDERATIONS

A. All equipment shall be professional grade and rated for continuous duty.

B. All equipment must be self supporting. Provide all necessary support hardware.

C. O & M Manuals: Provide two (2) bound O & M manuals to the owner. Each will contain printed operating instructions for all system functions. Providing standard factory equipment operating instructions alone will not be acceptable. O & M manuals will contain “as-built” schematic wiring diagrams of all systems, internal wiring diagrams of the central rack cabinet and controls, parts lists, preventive maintenance notes, troubleshooting procedures, gain charts, impedance charts, plots of each equalizer settings measured at the equalizer output, and numerical values of all control settings.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Manufacturer's Qualifications: Firms regularly engaged in manufacture of sound system components and accessories, of types, capacities and characteristics required, whose products have been in satisfactory use in similar service for not less than 5 years.

B. All equipment and material shall be new, and must have been commercially available for at least one year prior to bid.

C. All equipment must be UL listed of built to UL standards.

2.02 SYSTEM EQUIPMENT REQUIREMENTS

A. Mixers:

1. MX1: • Mix channels: 64 mono, 8 stereo.
   • Busses: 16 mix, 8 matrix (Input to Matrix supported).
   • Local I/O: 32 in, 16 out.
   • Fader configuration: 32 + 2 (Master).
   • Stainless steel iPad support stays.

B. Digital Signal Processors:

1. DSP-1, DSP-2: Digital Signal Processor: Inputs shall be capable of mic or line level signal. Base unit shall be 4x4 configuration matrix processor and be capable of input or output expansion with plug-in printed circuit cards. Unit shall have 10/100 ethernet and RS-232 control capability. Expansion cards to be supplied and installed per drawings.
   Every aspect of the mixer/processor's set-up shall be facilitated by a PC running software that is included with the unit. The interface between the PC and the processor shall be based on a generic PC industry standard. Once set up, the PC may be removed and the settings shall be stored within the unit in non-volatile memory, not requiring a battery. Basis of design is Ashly NE24.24M matrix processor.

C. Amplifiers:

1. PA-1: Audio Power Amplifier: 4 inputs routable to any of the 4 outputs, rated power 2400 watts @ 4 ohms, signal-to-noise ratio >-108dB, THD @ full rated power 0.35%, frequency response +/- 0.25dB, 20Hz to 20kHz. Amplifier shall be Crown I-Tech 4x3500.

2. PA-2, CA-1: The unit shall be a 4 channel multi-mode amplifier capable of driving 2 Ohm loads at full power. The maximum rated output power shall be 800W per channel at Low Z, 70V, and 100V mode. There shall be an automatic but defeatable sleep mode consuming <1W. A switch mode power supply shall auto-detect 120VAC or 240VAC mains, and a Neutrik® powerCON shall be used for the AC cord. Each channel shall have selectable output mode of Low Z, 70V, or 100V, an 80Hz high-pass filter, input limiter, and input gain settings of 26dB, 32dB, 38dB, or 1.4V. Each channel shall have remote DC level control. Input connectors shall be Neutrik® XLR/TRS combo jack and Euroblock, while output connectors shall be Neutrik® speakON. The unit shall have a front panel power switch and level controls that can be disabled. LEDs shall indicate Protect, Sleep, Disabled, and Bridge mode status, as well as Temperature, Output Current, Output Signal, and Clipping/Mute status per channel. The amplifier shall be Ashly nX8004.

D. Speakers:

1. Performance System: Shall be two (2) complete line arrays, comprised each of two (2) JBL

VT4883 Sub Woofers and six (6) each JBL VT4886 Array Modules, one (1) each JBL VT4886-VF Array suspension frame.

2. Cinema System: Shall be one-line array, comprised of four (4) JBL VRX932LA-1 speakers, one (1) VRX-AF Array suspension frame and ten (10) JBL 9310 Cinema Surround Speakers with mounts. The cinema system to be bid as an Additive Alternate. See bid documents.

3. MON-1: Monitor speaker; passive 12 inch, two-way, bass-reflex cabinet, 800 watts continuous power handling, 8 Ohm, 18mm plywood cabinet, Obsidian Duraflex finish. Speakers to be JBL SRX812, Qty four (4).

E. Wire and Connectors:

1. Furnish and install signal and speaker cable which complies with the following:

a. Speakers, low impedance, line arrays: 10 AWG twisted pair.

b. Speakers, low impedance, monitors, box speakers: 12 AWG twisted pair.

c. Speakers, 70 Volt, 16 AWG twisted pair.

d. Signal cable: 22 AWG shielded/twisted pair.

e. All cable to be plenum rated.

PART 3- EXAMINATION

3.01 INSTALLATION

A. General: Wire all systems in accordance with Standard Broadcast Practices and the National Electrical Code, NFPA, SMPTE, NAB, UL, EIA, FCC, NTSC, Design and installation (SAMS) and any other authority having jurisdiction. When a conflict occurs, follow the most stringent requirements.

B. Speakers:

1. Confirm polarity of speaker before installation and wire to maintain uniform polarity.

2. Provide brackets, screws, adapters, hanging apparatus for correct installation of speaker assemblies and electronics components.

C. Electronics:

1. Assure sufficient ventilation for adequate cooling of equipment.

2. Where equipment is installed in rack cabinets, utilize all fastening holes. Provide rack mount kits for all electronic equipment specified for mounting inside the equipment rack.

3. Leave sufficient service loops on uniform length on cables to allow operation of system with chassis outside cabinet.

E. Cable, Wire and Connectors:

1. All cable and wire shall be new and un-spliced. All cables in conduits must be insulated and shielded from each other and from the conduit for the entire length.

2. Junction box locations shall be installed with sufficient cable length behind cover plates to permit wiring maintenance and connector replacement in the future.

3. Particular care shall be taken to ensure at least a 12” separation from electrical lines whenever feasible. At points where separation is unavoidable, distribution cables shall cross other services at right angles whenever practical to minimize EMI.

4. Ground all line shields at the “sending” end of the respective circuits only. Use “wedge-on” insulators or heat shrink tubing to isolate the ground on the other end.

5. All system wire, after being cut and stripped, shall have the wire strands twisted back to their original lay and be terminated by approved soldered or mechanical means. No bare wire ends shall be accepted.

6. Heat shrink tubing shall be used to insulate and dress the ends of all wire and cables including a separate tube for the ground or drain wire.

7. All mechanical connections shall be made with approved crimp lugs of the correct size and type for the connection. Wire nuts shall not be permitted. Each connector shall be attached with the proper size controlled-duty-cycle ratcheting crimp tool which has been approved by the manufacturer of the connectors.

PART 4 ACCEPTANCE TESTING

A. System performance, tests and adjustments:

1. Hum and noise level: Test overall hum and noise to be a least 50dB below rated power output with amplifier controls set for optimum signal-to-noise, using input from test CD or microphone.

    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 test level.
    c. Apply 250, 500, 1K, 2K and 4K sine wave signal from oscillator having less than .01% THD to each microphone and line level input at level required to produce full amplifier output.
    d. Distortion must measure less the 0.5%.

2. Parasitic oscillation and RF pickup:

    a. Set up system for each specified mode of operation.
    b. Use an oscilloscope with a 5 MHz bandwidth and speaker monitoring.
    c. Check to ensure that the system is free of spurious oscillation and RF pickup in the absence of any input signal and also with the system driven momentarily to full output at 160Hz.
    d. Repeat this test for each mode of operation of the lighting (incandescent, neon, and fluorescent).

3. Buzzes, rattles, and distortions:

    a. Apply high quality music from a CD and adjust volume for peak output.
    b. Listen carefully for buzzes, rattles or objectionable distortion.
    c. Correct all causes of such defects. If cause is outside system, promptly notify offending parties.

4. Equalization:

   a. Equalize the sound systems utilizing parametric filters in order to provide uniform seat-to-seat response, raise the threshold of feedback, suppress ring modes and ensure natural, pleasing sound in equal and adequate amplitude with maximum degree of intelligibility and provide performance conforming to the requirements specified under “Acceptance Testing”. Equalization shall be adjusted for flat response from 100 Hz to 10 KHz and -3dB per octave above 10 KHz.

5. Level Balance:

   a. Adjust all items of similar equipment for identical measured voltage gain.
   b. Some controls may require re-adjustment as a result of “Acceptance Testing.”
   c. Testing using a TEF analyzer shall be performed at various locations in the auditorium to determine the intelligibility of the system.

6. Final Acceptance:

   a. Upon approval of the Contractor’s test report and at a time set by the owner and design engineer, demonstrate to the owner that the final system adjustments and tests meet the performance requirements. Provide all labor, materials, tools, and measurement equipment necessary for these tests and adjustments. At a minimum, without implying limitation, provide the following equipment in good working order at the time of final acceptance testing:

      1. 1/3 octave real-time audio spectrum analyzer with SPL meter and precision microphone.
      2. Random pink noise generator, 20Hz-20Khz, minimum 2 hr. repetition rate.
      3. Digital Volt-Ohmmeter.
      4. Audio oscillator, variable frequency, 20Hz-20KHz.
      5. Notebook computer with Smaart Pro software.
      6. All software required to set up system parameters.
      7. TEF analyzer

   b. The Contractor’s representatives performing these tests must be thoroughly familiar with all details of the system. The test team must include the field supervisor and the Engineer in charge during the course of the installation work.

   c. The Contractor is responsible for all costs incurred to satisfy criteria requirements.

   d. Acceptance Tests may include speech intelligibility surveys and subjective evaluation by observers listening at various positions under various operating conditions, using speech, music and live or recorded effects material.

PART 5. WARRANTIES

A. Installation of each system in its entirety shall be installed per manufacturer’s recommendations and warranted by the Contractor for a period of one (1) year from the date of written acceptance to meet all performance requirements outlined herein. Warranties may not be pro-rated.

B. During the warranty period, no charges shall be made for any labor, equipment or transportation necessary to maintain performance and functions.

C. During the warranty period, the Contractor shall respond with remedy to a trouble call within twenty-four (24) hours after receipt of such a call, and shall provide a 24 hour service phone number.

D. Equivalent replacement equipment shall be temporarily provided when immediate on-site repairs cannot be made.

E. At least two routine inspection and adjustment visits will be scheduled during the first year.

END OF SECTION

QUANTUM
TECHNOLOGIES, INC.

HOAR PROGRAM MANAGEMENT

PROJECT:	PHASE I:
Princess Theatre – City of Decatur	Projector and Sound System Upgrades
PACKAGE:	
Cinema and Presentation Video System	

NOTES:
N/A

1. PROJECT SUMMARY : VIDEO AND CONTROL

1.a. PURPOSE

The purpose of this Invitation to Bid (ITB) is to provide an Audio/Video System at the Princess Theatre, Decatur, Alabama. This ITB will consist of the Base Bid Amount. The successful bidder will be responsible for delivering a turn-key solution that will consist of design, installation, equipment, labor, materials, training, and one year onsite maintenance.

These specifications shall be construed as minimum. Should manufacturer's current published data or specifications exceed these, such standards shall be considered minimum and furnished. All integral parts not specifically mentioned in the scope of these specifications that are necessary to provide a complete working system(s) shall be furnished. All equipment must be current models and versions.

The use of specific names and numbers in the specifications is not intended to restrict the bidder or any seller or manufacturer's, but is solely for the purpose of indicating the type, size and quality of equipment considered best adapted to Princess Theatre.

If a "or equal" item is bid, it will be Bidders responsibility to prove that "or equal" item is in fact equal. Specifications listed highlight important features, but do not constitute full specifications used to determine "or equal" acceptance.

1.b.. INTENT

It is the intent of these specifications, terms and conditions to describe audiovisual upgrades necessary to enhance the quality and performance of the audio and visual equipment that are part of the Princess Theatre. The AV Contractor is responsible for supervision and technical labor, material, equipment, and all appurtenances necessary to provide a complete and operational audiovisual system including but not limited to the following systems; video display and routing systems, audio systems and equipment, collaboration software.

1.c. System Requirements:

The system shall be fully integrated and include the following:

 All labor associated with design, planning, project management, installation, onsite-training, etc. to complete the installation. Installation shall include the use Minolta CS-200 chromameter for color calibration. Dolby audio calibration tuning.

2. EQUIPMENT:

2.a. DIGITAL VIDEO PROJECTOR

The Digital Projector shall include Christie Previsto™ High Frame Rate (HFR) technology. Display premium 2D/3D HFR feature film and alternative content in its original format. 2K, Series 2 DLP Cinema technology DCI compliant 3D ready. Christie's full range of digital cinema accessories includes the Christie Integrated Media Block (IMB), the Christie Cine-IPM 2K for alternative content, the Christie SKA-3D for economical Audio/Video processing, the Christie ACT automation control system, and a full suite of lenses and lamps. The Digital Projector shall feature a motorized lensing solution and a selection of eight zoom lenses to guarantee the right lens solution for virtually any auditorium with no need for resizing or scaling.

Standard support for HDCP and SNMP Split power operation for use with UPS Local control via flexible Touch Panel Controller (TPC) and full access from anywhere via web based GUI One-piece compact

design for flexible mounting and installation Rear access for quick and easy lamp changes Intelligent Lens System (ILS™), custom designed for cinema, for reliable motorized lens operation In its standard configuration.

Based on 0.98" DLP Cinema technology, the Digital Projector shall use high efficiency, long lasting CDXL-SD series Xenon lamps as well as the CDXL-14M and CDXL-16M, new lamps designed for long life and low power consumption. T

- 2.3kW (CDXL-23S) 003-004769-01 nominal range
- 2900 -15,000 lumens screen size
- 50' screen1 Supported frame rates
- 2D up to 120 fps, 3D up to 60 fps/eye2 Contrast ratio
- 2000:1 full field on/off Digital micromirror device
- 0.98" 2K 3-chip DMD DLP Cinema
- 2048 x 1080 pixels Input line voltage
- Single phase 220V
- Number of colors 35.2 trillion Lenses
- See christiedigital.com Power supply
- 0.7kW-2.3kW low-ripple switch mode lamp power supply Standard inputs
- 2 x HD-SDI inputs for 2K source content
- 2 x DVI (HDMI) inputs for alternative content
- Weight As installed: 122lbs (55kg) Accessories
- Christie Integrated Media Block (IMB) 108-384107-01
- 90 degree extraction duct adapter 119-103105-01
- Rack mount stand 108-416102-01
- Link Decryptor 003-120535-01

2.b. DIGITAL CINEMA PROCESSOR

The Dolby® Digital Cinema Processor shall provide easy-to-operate audio control in digital cinema environments while integrating seamlessly with existing technologies. The Processor shall support 5.1 as well as Dolby Surround 7.1 premium surround sound, and it can receive and process audio from multiple digital audio sources, including a digital cinema server, preshow servers, and alternative content sources.

The Processor shall be ready for use by a network operations center (NOC) and can be monitored and controlled from anywhere on the network for status and function.

The Digital Cinema Processor shall include Dolby Show Manager software, enabling it to process digital input selection and volume cues within a show using cues, as well as real-time volume control and mute/unmute functionality. The Processor shall support ASCII commands from third-party controllers over Ethernet or serial connections.

Moreover, Dolby Surround 7.1 (D-cinema audio), 5.1 digital PCM (D-cinema audio), Dolby Digital Surround EX™ (bitstream), Dolby Digital (bitstream), Dolby Pro Logic® II, and Dolby Pro Logic decoding shall be included to deliver the best in surround sound from all content sources for your single screen, multiplex, or large network.

DOLBY DIGITAL CINEMA PROCESSOR FEATURES

• Dolby Show Manager Software Integration Builds volume cues and digital input selection into shows with drag-and-drop ease for seamless control

• Eight-Channel Digital Input (4 × AES/EBU) for Digital Cinema Server Includes support for Dolby Surround 7.1

• Two Digital Pair Inputs (1 × AES/EBU) Connects alternative content sources (for example, preshow server, satellite receiver)

• Toslink™ Digital Input Connects alternative content sources that output optical digital audio

• Eight-Channel Analog Input Connects existing film or alternative sound processor

• USB Connector Enables easy system setup from a PC

• Ethernet Connector Connects with Dolby Show Manager network and/or can be monitored, controlled, or upgraded anywhere on the network for glitch-free shows. Also supports ASCII commands or remote control of the processor using the CP750 setup application • Premium Surround Sound Supports 5.1 and Dolby Surround 7.1 sound

2.c. DOLBY INTEGRATED MEDIA SERVER

The Dolby® Integrated Media Server shall be a single-board solution that provides high uptime to keep the show running and protect revenue streams. The Server will provide on-board RAID storage, server control, and a DCI-compliant media block in a compact form enabling it to fit in a DLP® Series 2

projector. User control shall be via web-based UI allowing access from anywhere on the theater network, with full compatibility with Dolby's TMS4 and any third-party TMS that supports Dolby products

FEATURES:

• Low cost of ownership (maintenance and power consumption)

• Up to 500 Mbps DCI-compliant digital cinema packages (DCP) playback—Interop and SMPTE packages

• Web-based UI allows easy access from anywhere on the theatre network • Configuration console available on Mini DisplayPort output (no UI)

• Single-board design • 2 TB of internal storage with RAID 5 protection and convenient front-panel access

• Hot-swappable drives • External NAS support for additional storage*

• Dolby Atmos® audio support

• Support for accessibility products (Dolby Fidelio, Dolby Captiview, and SMPTE ST430-10 output)

• RealD® ghost busting (license required)

• Ingest through eSATA, USB 3.0, or Ethernet (up to 500 Mbps)

• 4 × GPI

• 6 × GPO • Linear timecode (LTC) output option (configurable at installation)

• Live-event Ethernet stream support**

• Internal scaling and deinterlacing up to 4K

• JPEG 2000, MPEG-2, H.264, and VC-1 decoding

• Dual-projector support

• DCI-compliant

• Dolby Pngest

• Play while ingest

SPECIFIACTIONS:

• 3 × GB Ethernet (1000Base-T/RJ-45)

• 1 × eSATA 3 Gbps • 1 × USB 2.0

• 2 × USB 3.0

• 1 × HDMI®

• 2 × 3G HD-SDI bidirectional (input and output)

• 8 × AES audio pairs (2 × RJ-45) • 4 × GPI (1 × RJ-45) • 6 × GPO (1 × RJ-45)

• LTC output option (configurable at installation) • 3 × hot-swappable removable 2.5” HDDs • Mini DisplayPort console out (no UI)

DCI-COMPLIANT DCP PLAYBACK JPEG 2000

• 2K up to 120 fps

• 4K up to 30 fps

• Bit rates up to 500 Mbps

• 12-bit 4:4:4 XYZ for all formats

• Support of SMPTE DCP, MPEG-2, and MXF Interop formats

• Subtitles engine

• DCI-compliant

• 720p 60, 1080i 60, and 1080p 60 • Bit rates up to 50 Mbps • 4:2:0 8-bit color

VIDEO PROCESSING FEATURES

• Color-space conversion—supports YCbCr601, YCbCr709, REC 709, XYZ, YCxCz

• Deinterlacing

• Scaler up to 4K

• Web-based user interface

• Mini DisplayPort console out

• Dolby TMS

• Third-party TMS and NOC systems

• API documentation available on request

• DCI-compliant forensic watermarking • FIPS 140-2 (Level 3 security certified)

AUDIO

• 16 channels, AES-EBU, 24 bits up to 96 kHz

POWER CONSUMPTION

• <70 W

STORAGE

• Internal—3 × 2.5” 1 TB hard disk drives (RAID 5 configuration)

2.d. NETLINX INTERGRATED CONTROLLER

SUMMARY

- Next Generation Netlinx Integrated Controller provides a scalable platform for the future by combining high performance, backward compatibility, and extensive network security features.

ONBOARD MASTER REQUIREMENTS

- Controller must have USB host port for upgrading firmware, loading code, copying configuration data, and remote storage. Controller without the USB host port and listed features will not be accepted.
- Controller must support flexible programming platforms such as Rapid Project Maker, Netlinx, and Java). Controllers lacking the flexibility of programming will not be accepted.
- Controller must have a minimum of 1600 MIPS. Controller without the minimum speed requirements will not be accepted.
- Controller must have status indicators. Controller without status indicators to indicate the system is communicating properly will not be accepted.

MEMORY REQUIREMENTS

- Controller must have a minimum of 1MB of non-volatile RAM. Controller without the minimum NVRAM will not be accepted.
- Controller must have a minimum of 1GB of available storage to the user. Controller without the minimum storage requirement will not be accepted.
- Controller must support external USB solid state drives for additional storage. Controllers without external USB support will not be supported.

NETWORK REQUIREMENTS

- Controller must have a minimum of one ICSLan ports enabling discrete networks and increased security. Controllers without an ICSLan port will not be accepted.
- Controller supports IPv6. Controllers without support of IPv6 will not be accepted.
- Controller supports 802.1x and HTTPS. Controller without support of advanced security integration.

CONTROL PORT REQUIREMENTS

- Controller must have standardized port numbering throughout entire NX controller family. Controllers without standardized port numbering will not be accepted.

- Controller must provide real time feedback on serial and IR ports that are disconnected or mis-wired. Controllers without enhanced diagnostics for serial and IR ports will not be accepted.
- Controller must have a minimum of one AxLink communication ports. Controller without an AxLink port will not be accepted.
- Controller must have a minimum of one 10 position serial port. Controller not meeting the requirement will not be accepted.
- Controller must have a minimum of three 5 position serial port. Controller not meeting the requirement will not be accepted.
- Controller must have a minimum of four infrared/serial ports. Controller not meeting the requirement will not be accepted.
- Controller must have a minimum of four contact closure ports. Controller not meeting the requirement will not be accepted.
- Controller must have a minimum of four relay ports. Controller not meeting the requirement will not be accepted.

TECHNICAL SPECIFICATIONS

DIMENSIONS

- 1 3/4” x 17” x 9 1/8” (44.85 mm x 431.80 mm x 231.64 mm)

WEIGHT

- 6.08 lb. (2.758 Kg)

REGULATORY COMPLIANCE

- FCC CFR Title 47 Part 15
- CE EN 55022
- CE EN 55024
- CE EN 60950-1
- IEC 60950-1
- UL 60950-1
- C-Tick CISPR 22
- IC CISPR 22
- VCCI CISPR 22
- RoHS / WEEE compliant

INCLUDED ACCESSORIES

- 2-pin 3.5 mm mini-Phoenix (female) PWR connector (41-0002-SA)
- 4-pin 3.5 mm mini-Phoenix (female) AxLink connector (41-5047)
- 10-pin 3.5mm mini-Phoenix female RS232/422/485 connectors (41-5107)
- (3) 5-pin 3.5mm mini-Phoenix female RS232 connectors (41-0336)
- 6-pin 3.5 mm mini-Phoenix female I/O connector (41-5063)
- 8-pin 3.5 mm mini-Phoenix female Relay connector (41-5083)
- (2) CC-NIRC IR Emitters
- (2) Removable rack ears (XX-XXXX-XX)

ACTIVE POWER REQUIREMENTS

- Power Connector (1) 2-pin, 3.5mm Phoenix with retaining screws
- DC current Draw 200 mA @ 12 VDC
- Voltage DC Range 9 - 18 VDC
- Active Power Consumption 4.2W

ENVIRONMENTAL

- Temperature (Operating) 0° C to 50° C (32° F to 122° F).
- Temperature (Storage) -10° C to 60° C (-14° F to 140° F).
- Humidity (Operating) 5% to 85%, non-condensing

2.E. WALL MOUNT TOUCHPANEL

Overview The MSD-701 / 7" Modero S Series Wall Mount Touch Panel is a versatile control surface that is equally suited for scheduling or room control. With a generous selection of mounting options, the MSD-701 can be placed on any flat surface (including glass) inside or outside a conference room or classroom, and the built-in room availability bar shows green or red depending on if the room is currently booked. Key features include a brilliant 24-color depth, PoE connectivity, video streaming, and VoIP support.

Common Applications

 The MSD-701 allows even the most cost sensitive meeting spaces to benefit from a dedicated scheduling panel, allowing users to view the room schedule at a glance and even reserve the room right from the panel.

 The MSD-701 is also ideal as a second touch panel that is mounted on the wall or in a podium or lectern in a large conference room or classroom.

FEATURES

 Powerful Graphics – Powered by the G4 graphics engine, the Modero S Series features streaming video and brilliant 24-bit color depth

 Elegant Room Availability Bar with 180° Visibility – Easily glance down the hall to see if meeting spaces are occupied

 Mount to Any Smooth Surface Including Glass – Use the optional Multi Mount Kit and mount the Modero S wall touch panel to any smooth surface

 Elegant & Responsive User Interface – Exclusive SmoothTouch™ display supports single touch gesturing and delivers responsive performance

 Architectural Design Consistency – Install both Modero S and Modero X touch panels throughout a facility for consistent style

SPECIFICATIONS: TOUCH SCREEN DISPLAY

Display Type TFT Active Matrix Color LCD with Fringe Field Switching (FFS) - Wide Viewing Angle Technology Display Size (WH) 7.3" x 4.8" (186 mm x 122 mm), 8.8" (222 mm) diagonal Viewable Area (WH) 6.05" x 3.54" (154 mm x 90 mm), 7.0" (178 mm) diagonal Resolution (WH) 1024x600 Aspect Ratio (WH) 16:9 Brightness 400 cd/m2 Contrast Ratio 800:1 Color Depth 16.7M colors Illumination LED Touch Overlay Resistive Viewing Angle 89°/89°/89°/89° (Up/Down/Left/Right)

MEMORY

SDRAM 512 MB Flash 4 GB Maximum Project Size 2.4 GB flash available to user

COMMUNICATIONS

ETHERNET 10/100 port, RJ-45 connector. Supported IP and IPBased Protocols: UCP, TCP, ICMP, ICSP, IGMP,DHCP, Telnet, FTP, DNS, RFB (for VNC), HTTP USB (1) USB host 2.0, Type A port: firmware upgrade, touch panel file transfer, JPEG image viewer, HID peripherals Bluetooth® Mouse/Keyboard: HID Profile v1.1, requires MXA-BT, Bluetooth USB Adapter for Modero X/S Series Touch Panels (FG5968-19) and MXA-HST, Bluetooth Handset for Modero X/S Touch Panels (FG5968-17)

VIDEO

Supported Video Codecs MPEG-2-TS: MPEG-2 Main Profile @ High Level up to 720p at 25 fps (decode)

MPEG-2-TS: H.264 High Profile@Layer 4, AAC-LC up to 720p at 25 fps (decode**)**

MJPEG up to 720p at 25 fps (decode only) Supported Video Transport Streams MPEG-TS for MPEG-2 and H.264; HTTP for MJPEG Max Number of Active Video Streams One decode

AUDIO

Microphone -42 dB ± 3 dB sensitivity FET microphone Speakers 4 ohm, 1.5 Watt, 500 Hz cutoff frequency Supported Audio Codecs MP2 Layer I and II, MP3 (8 kHz, 11.025 kHz, 12 kHz, 16 kHz, 22.05 kHz, 24 kHz, 32 kHz, 44.1 kHz, 48 kHz)

AAC-LC (8 kHz, 96 kHz)

G.711 with μLaw (VoIP encode/decode at 8 kHz)

MSD-701 | 3

File Formats WAV, MP3 (as part of touch panel file only - no USB storage) Intercom Full Duplex VoIP, SIP v2.0

GRAPHICS ENGINE

AMX G4 AMX's exclusive, powerful G4 graphics engine – the driving force behind the advanced graphics and image processing capability on a variety of AMX Touch Panels and other devices (see TPD4 Operations Guide for more information)

EMBEDDED APPLICATIONS

Remote Management VNC Server, G4 Web Control Panel-to-Panel Conferencing Receives audio and video and returns audio for panelto-panel communication Audio Conferencing Audio (full duplex intercom)

FRONT PANEL COMPONENTS

Sleep Button Sleep button to activate sleep mode and powering off. Also provides access to setup pages (can be disabled) Programmable Red/Green LEDs Programmable red/green LED in the front, left and right sides of the panel, LEDs are beautifully recessed and nearly invisible when not lit

CONNECTIONS

Ethernet 10/100 port, RJ-45 connector USB (1) USB host 2.0, type A port Power PoE (Power over Ethernet), 802.3af, class 0

ENVIRONMENTAL

Temperature (Operating) 32° F to 104° F (0° C to 40° C) Temperature (Storage) 4° F to 140° F (-20° C to 60° C) Humidity (Operating) 20% to 85% RH Humidity (Storage) 5% to 85% RH Power (“Heat”) Dissipation On: 22.2 BTU/hr Standby: 14.3 BTU/hr

GENERAL

Dimensions (HWD) 4 7/8” x 7 3/8” x 2 1/4” (123.9 mm x 187.5 mm x 58 mm), with back box Weight 1.05 lbs (.680 Kg), with back box 0.8 lbs (.363 Kg), without back box

Power Consumption Full-On: 11 W (max) Typical: 7.5 W Standby: 4.5 W Shutdown: 0.7 **W**

Regulatory Compliance FCC Part 15 Class B CE EN 55022 CE EN 55024 CE EN 60950-1 IEC 60950-1 IC CISPR 22 Class B C-Tick CISPR 22 Class B UL 60950-1 VCCI CISPR 22 Class B RoHS WEEE

Optional Accessories • MXA-MP, Modero X/S Series Multi Preview (FG596820)

MXA-BT, Bluetooth USB Adapter for Modero X/S Series Touch Panels (FG5968-19)

• MXA-HST, Bluetooth Handset for Modero X/S Touch Panels (FG5968-17)

• CB-MXSA-07, Rough-In Box and Cover Plate for Modero X/S Series Touch Panel, 7" (FG2265-18)

• MSA-MMK-07, Multi Mount Kit, for use with MSD701 (FG2265-12)

• MSA-MMK2-07, Multi Mount Kit, for use with MSD701-L2, RMBK-701 (FG2265-22)

• MSA-RMK-07, Rack Mount Kit for Modero S Series Touch Panel, 7" (FG2265-15)

• MSA-AMK-07, Any Mount Kit, for use with MSD-701 (FG2265-25)

• MSA-AMK2-07, Any Mount Kit, for use with MSD701-L2, RMBK-701 (FG2265-35)

• MXA-CLK, Modero X/S Series Screen Cleaning Kit (FG5968-16)

• MXA-USB-C, USB Port Covers for the Modero X/S Series Touch Panels (FG5968-18)

2.F. LARGE VENUE PROJECTION SCREENS

GENERAL

SUMMARY

A. Section Includes: This Section specifies electrically operated front projection screens and accessories.

. RELATED SECTIONS

B. Section 26 05 00 - Common Work Results for Electrical: Power supply, conduit and wiring.

DEFINITIONS

C. Gain: Indication of screen’s luminance or brightness, measured perpendicular to screen center and relative to magnesium carbonate block, which serves as standard for 1.0 gain. Higher numbers indicate greater brightness.

D. Viewing Angle: Horizontal angle from perpendicular center of screen at which gain or brightness decreases by 50%.

E. Format: Proportion of projection screen viewing area expressed as a ratio of width/height.

1. 16:10 Wide: 1.60:1.

REFERENCES

F. International Code Council (ICC):
   1. International Building Code.
G. Society of Motion Picture and Television Engineers (SMPTE):
   1. SMPTE RP 94-2000, Gain Determination of Front Projection Screens.
H. Underwriters Laboratories Inc. (UL).
I. Underwriters' Laboratories of Canada (ULC).

ACTION SUBMITTALS

J. General: Submit listed action submittals in accordance with Contract Conditions
K. Product Data: Submit product data, including manufacturer's technical product data sheet, for specified products.
   1. Material Safety Data Sheets (MSDS).
L. Shop Drawings: Indicate dimensions, fabrication and installation details.
   1. Include electric wiring diagrams.

M. Samples: Submit [2] samples of screen finish material having dimensions of [6 inches × 6 inches (152 × 152 mm)].

INFORMATION SUBMITTALS

N. Quality Assurance:
   1. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
   2. Certificates: Product certificates signed by manufacturer certifying that materials comply with specified performance characteristics, criteria and physical requirements.
   3. Manufacturer's installation instructions.

CLOSEOUT SUBMITTALS

O. Operation and Maintenance Data: Submit for products
   1. Manufacturer's instructions detailing maintenance requirements.
   2. Parts catalog that includes complete list of repair and replacement parts, with cuts and identifying numbers.

QUALITY ASSURANCE

P. Qualifications:

1. Worker experienced in performing work of this section who has specialized in work similar to that required of this project.

Q. Regulatory Requirements:

Specifier Note: Electrically operated projection screens must meet the requirements of building codes and zoning bylaws issued by federal, state and local government authorities having jurisdiction (AHJs). Ensure that the project specification section reflects the need to meet these requirements. Edit Article below as applicable.

1. Comply with [Uniform Building Code (UBC)] [International Building Code (IBC)] [Building Code for [Alabama] [City] of [_Decatur_].

R. Preinstallation Meetings: Conduct preinstallation meeting to verify project requirements and manufacturer's instructions. Comply with Section [01 31 19 - Project Meetings].

DELIVERY, STORAGE & HANDLING

S. Storage and Protection:

1. Store electric projection screens in a dry, ventilated area, protected from exposure to harmful weather conditions, at a temperature less than 80 degrees F (27 degrees C).

T. Handling: Handle electrically operated projection screen materials with care in order to prevent damage.

U. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

V. Waste Management and Disposal:

Separate waste materials for [reuse] [and] [recycling] in accordance with Section [01 74 19 - Construction Waste Management and Disposal].

Remove packaging materials from site and dispose of at appropriate recycling facilities.

PROJECT AMBIENT CONDITIONS

W. Project Location: Perform electrically operated projection screen work when temperatures are greater than 40 degrees F (4 degrees C).

SEQUENCING

X. Sequence With Other Work: Comply with projection screen manufacturer's written recommendations for sequencing construction operations.

WARRANTY

Y. Project Warranty: Refer to Contract Conditions for project warranty provisions.

Z. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and does not limit, other rights Owner may have under Contract Documents.

.

AA. Warranty: Commencing on date of acceptance by [Consultant].

MAINTENANCE MATERIALS

BB. Use standard product line parts produced by manufacturer of electrically operated projection

screens.

PRODUCTS

MANUFACTURERS

Ensure manufacturer has minimum [5] years experience manufacturing components similar to or exceeding project requirements.

CC. Manufacturer: Da-Lite Screen Company, Inc.

1. Contact: P.O. Box 137, 3100 N. Detroit St., Warsaw, IN 46581-0137; Telephone: (800) 622-3737, (574) 267-8101; Fax: (877) 325-4832, (574) 267-7804;
2. E-mail: info@da-lite.com; website: www.da-lite.com.

PROPRIETARY PRODUCTS/PROJECTION SCREEN SYSTEMS

Type 3: Cable and Drum System.

3. Operation: Suspended roll-up type, electrically operated by two motors, controlled by a low voltage control unit, with steel cable to raise and lower screen.
    a. Motors: Two UL Certified 3-wire reversal-type permanently lubricated motors attached to the header, with preset adjustable limit switches to automatically stop viewing surface in the UP or DOWN position, and including automatic thermal overload protection, integral gears, capacitor and electric brake to prevent coasting.
        1) Voltage, Frequency: [115 V, 60 Hz] [220/240 V, 50 Hz]. Amperage: 2.4 amps.
4. Screen Mounting:
    a. Support Framing: [Ceiling] [Roof structure] [Secondary support].
    b. Top Header: Rigid tubular aluminum, diameter 3 inches (76 mm), with cast aluminum end caps.
        1) Overall Header Width: 2 inches (51 mm) wider than screen.
        2) Screen Pocket: Equip viewing screen fabric with pocket at top of screen, sized to accept header.
    c. Suspension Clamps: High tensile cast aluminum, 3 inches (76 mm), double C-type.
        1) Turnbuckle: Provide turnbuckle on center clamp(s).
    d. Bottom Roller: Rigid tubular aluminum, diameter 5 inches (127 mm), with machined aluminum drums.
        1) Roller Width: 12 inches (305 mm) wider than screen.
    e. Cable: Steel, diameter [0.125 inches (3.2 mm)] [0.375 inches (10 mm)].
5. Screen Size:
    a. Viewing Area: H 204 inches × W 360 inches
6. Acceptable Material: Da-Lite Screen Company, Inc., Motorized Scenic Roller Screen.

a. Screen Viewing Surface:

1) Front projection, flame retardant, mildew-resistant vinyl coated fiberglass, black backed, [with] [without] standard black borders, easily cleaned with mild soap and water solution.

. Gain: To SMPTE RP 94-2000, 1.0.

Viewing angle: 60.

Format: [NTSC or Video – 1 [16:10 Wide - 1.60:1]

Acceptable Materials: Da-Lite Screen Company, Inc., Matte White viewing surface.

.

7. Optional Accessories:

Screen Drop: Extra drop of 5 feet H in black fabric.

a. Radio Frequency Remote Control: Handheld, 3-button, radio frequency transmitter for UP, DOWN and STOP functions.

b. Key Locking Cover Plate: Hinged cover plate with brushed stainless steel finish provides keyed access to low voltage control wall switch.

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EXECUTION

INSTALLERS

DD. Provide experienced and qualified technicians to install electrically operated projection screens.

MANUFACTURER'S INSTRUCTIONS

Compliance: Comply with manufacturer's written data, including product technical bulletins, product catalog installation instructions, product carton installation instructions and Da-Lite Screen Company, Inc., technical data sheets.

EXAMINATION

EE. Site Verification of Conditions

1. Verify that conditions of substrates previously installed under other sections or contracts are acceptable with electrically operated projection screen installation.
2. Ensure electrical power supply is installed to meet electric projection screen requirements in accordance with Section 26 05 00 - Common Work Results for Electrical.
   a. Verify type and location of power supply.
3. Inform Architect of unacceptable conditions immediately upon discovery.
4. Proceed with installation only after unacceptable conditions have been corrected.

COORDINATION

FF. Coordinate electric projection screen placement with placement of other ceiling and wall

mounted components.

INSTALLATION

GG. Install electric projection screens in accordance with reviewed shop drawings at locations and heights indicated.

HH. Install screen housing and make electrical connections [prior to] [in conjunction with] installation of ceiling system.

1. Verify locations with [Consultant] prior to installation.

Install viewing surface and drive assembly in housing [only after interior construction is substantially complete].

II. Securely install screens plumb and level to supporting substrate.

FIELD QUALITY CONTROL

JJ. Manufacturer's Field Services: Have manufacturer's technical representative schedule site visits to review work as follows:

1. After delivery and storage of products.
2. When preparatory work for which work of this Section depends is complete, but before installation begins.
3. [Weekly] [2 times] during progress of work [at [25%] and [60%]] of completion.
4. Upon completion of work, after cleaning is carried out.

KK. Testing and Inspection: Operate each screen [3] times to ensure viewing surfaces extend and retract through full range of motion.

1. Verify controls, limit switches, [automatic doors] and other components function as designed and meet project requirements.
2. Ensure viewing surface raising operation fully engages and lifts screen closure door into closed position.
3. Adjust motors, controls and components to allow for smooth, unobstructed screen operation.

FINAL CLEANING

LL. Perform cleanup in accordance with Section 01 74 00 - Cleaning and Waste Management.

MM. Upon completion, remove surplus materials, rubbish, tools and equipment.

PROTECTION

Protect electrically operated projection screens from damage during construction in accordance with Section [01 76 00 - Protecting Installed Construction].

NN. Repair damage to adjacent materials caused by electrically operated projection screen work.

MAINTENANCE

Perform work during regular trade working hours satisfactory to [Owner

3. EQUIPMENT REQUIREMENTS:

3.a. Equipment:

(1) Christie CP2215 Digital Projector

(1) Christie 1.9-3.0:1 Lens

(1) Christie DCP Pedestal Base

(2) CDXL-20SD Lamps

(1) Dolby Integrated Media Server IMS2000

(1) Dolby CP750 Digital Cinema Audio Processor

(1) AMX MSD 701-L2 Touch Panel

(1) AMX NX 2200 Integrated Controller

(1) Da-Lite Motoized Scenic Roller Screen

3.b. Accessories:

(1) Audio Cable Kit Ethernet DB-25

(1) Misc. Ethernet Cables

(1) Smart UPS 750VA 230V with cables

(1) Wireless router/hub

(1) ODY 16RJ-7.1 CD-SNY Aes over Cat6 Cable Kit

(1) ODY 750-25-VA output board for CP-750

(1) AMX Gigabit PoE Ethernet Switch (FG2178-63)

(1) Da-Lite 40973 LV Control Switch

3.c. OFE (Owner Furnished Equipment)

(1) Laptop/Desktop Computer

3.d. All high voltage wiring, conduit, pathways, and other electrical requirements to installed by others.

4. Vendor Requirements:

Successful bidder shall design an integrated system that meets the minimum

requirements specified.
Successful bidder shall have a factory trained and certified programmer on staff to program and service the integrated system as required by the customer.
The successful bidder must be an authorized dealer/reseller for all items used.
The successful bidder shall provide complete and accurate wiring diagrams and schematics upon the completion of the project.
Price shall include all labor (design, installation, programming, and training), miscellaneous parts, tools, freight, etc.
Successful bidder must include with the ITB a minimum of two examples, with references, of similar projects that have been satisfactorily completed in the last two years.
The specifications contained here in shall be construed as minimum. Should manufacturer's current published data or specifications exceed these, such standards shall be considered minimum and furnished. All integral parts not specifically mentioned in the scope of these specifications that are necessary to provide a complete working system(s) shall be furnished. The equipment to be purchased must be compatible and integrate seamlessly. All equipment must be current models and versions.
The use of specific names and numbers in the specifications is not intended to restrict the bidder or any seller or manufacturer's, but is solely for the purpose of indicating the type, size and quality of equipment considered best adapted to Princess Theatre.
If a "or equal" item is bid, it will be Bidders responsibility to prove that "or equal" item is in fact equal. Specifications listed highlight important features, but do not constitute full specifications used to determine "or equal" acceptance.

5. WARRANTY / MAINTENANCE

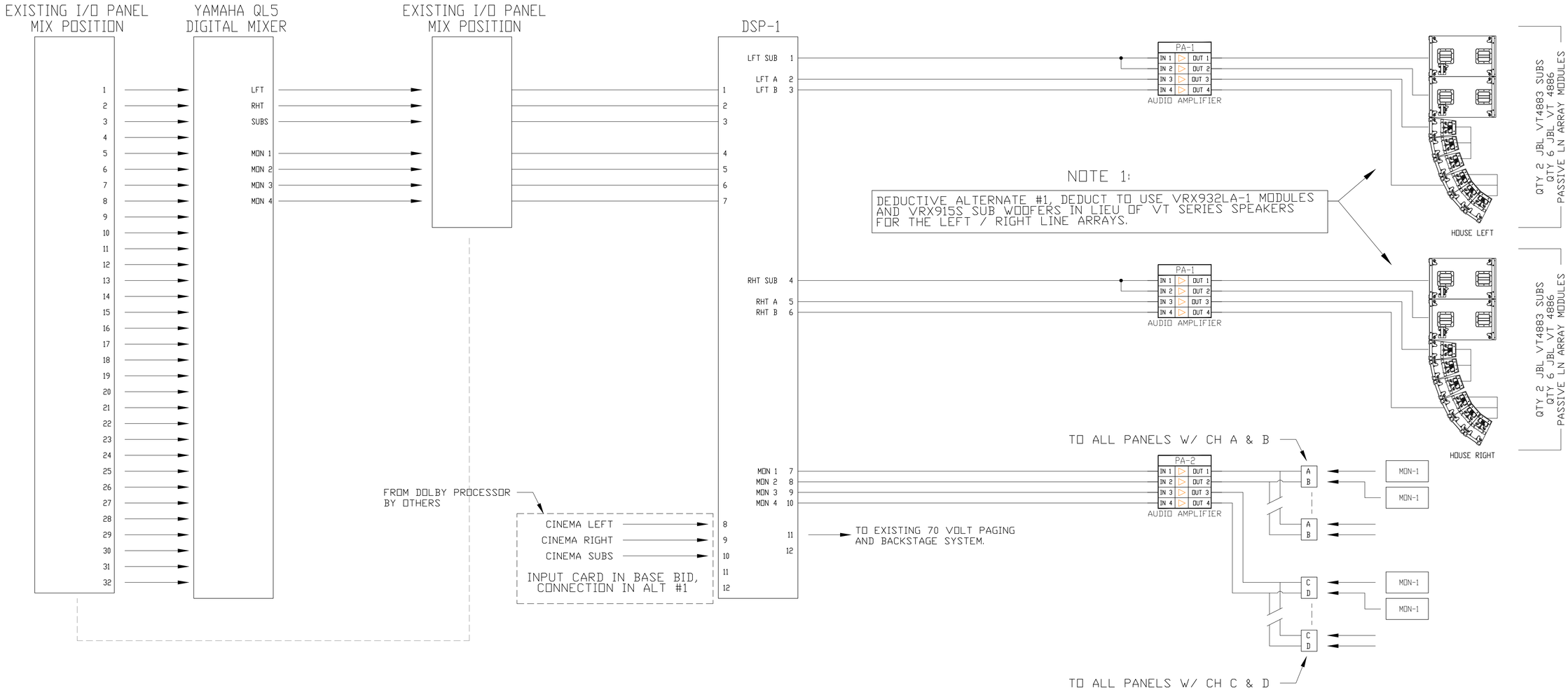
The successful bidder will be required to furnish one year of onsite Warranty/Maintenance to include materials and labor for all items and work performed under this Bid. Response time must be a minimum of next business day service.

6. DOCUMENTATION

After installation the successful bidder will be required to furnish (3) sets all documentation, manuals, and other printed matter relating to the operation and maintenance of the equipment. Additionally, they will be required to furnish a schematic of the system and components as installed.

7. TRAINING

After installation the successful bidder will be required to furnish a training class for Princess Theatre Staff on all user aspects of the system installed.



CONCEPTUAL DRAWING
NOT FOR CONSTRUCTION
SUBMIT SHOP DRAWINGS

QUANTUM TECHNOLOGIES, INC.
991 DISCOVERY DR., HUNTSVILLE, AL 35806
256-922-1200

PRINCESS THEATER
AUDIO ONE LINE DIAGRAM
SOUND SYSTEM UPGRADE
2017

DFTSMN:
AUD ENGR:
VID ENGR:
MCH ENGR:

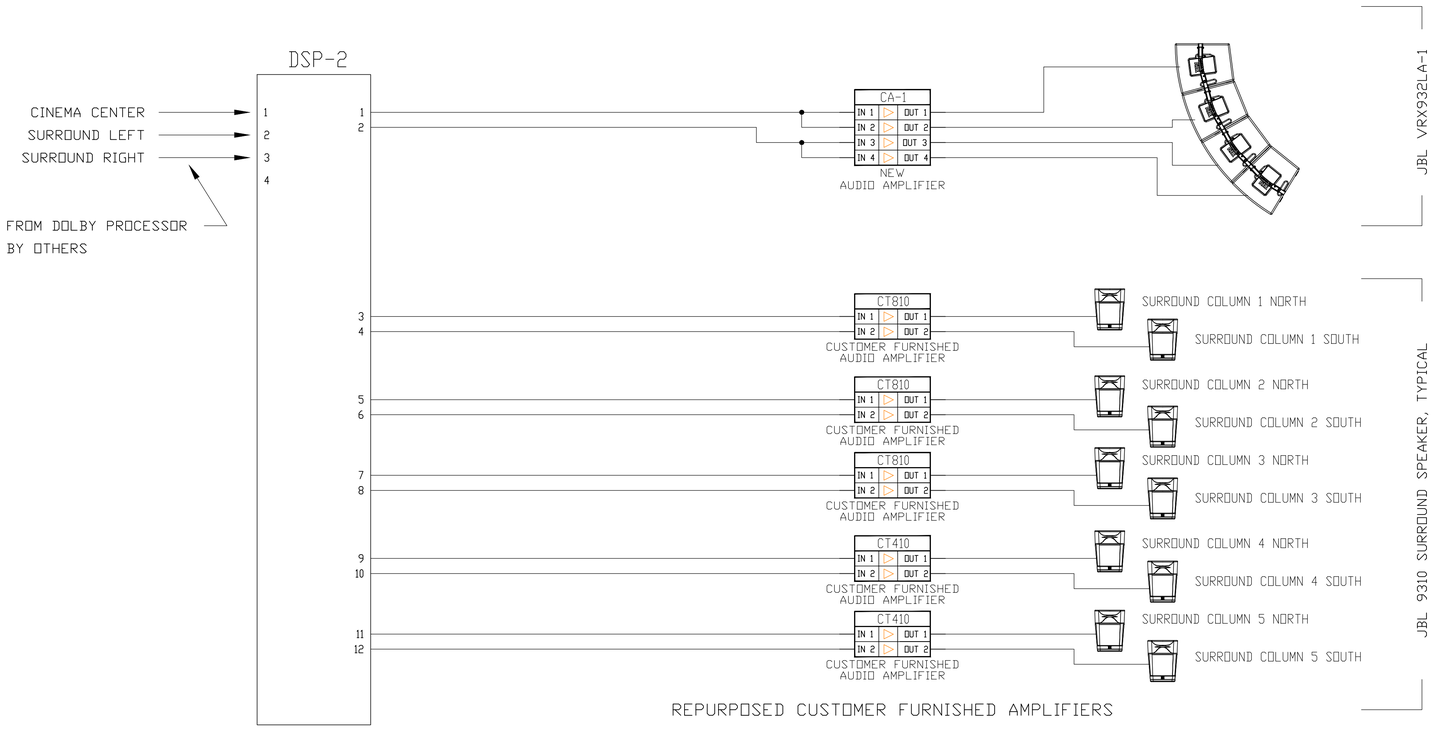
PLOT:

CHARGE NO.:

DWG NO:

CAD FILE REF:

SIZE: D | SHEET 1 OF 6



ALTERNATE #2, ADD

POWER REQUIREMENTS			
ITEM	PWR	VOLTS	COMMENT
PA-1 #1	33 AMPS	120	NEW
PA-1 #2	33 AMPS	120	NEW
PA-2	10 AMPS	120	NEW
CA-1	10 AMPS	120	NEW
CT810 #1	10 AMPS	120	OWNER FURNISHED
CT810 #2	10 AMPS	120	OWNER FURNISHED
CT810 #3	10 AMPS	120	OWNER FURNISHED
CT410 #1	5 AMPS	120	OWNER FURNISHED
CT410 #2	5 AMPS	120	OWNER FURNISHED
PROJECTOR	TBD	220-1ø	NEW
SCREEN	TBD	120	NEW

SCOPE OF WORK
(TTHESE NOTES REFER TO ALL DRAWINGS)

1.) REMOVE EXISTING SPEAKER CLUSTER AND BALCONY DELAY SPEAKERS.

2.) REMOVE EXISTING SPEAKER CLUSTER, BALCONY DELAY SPEAKERS, HOUSE MIXING CONSOLE, AMPLIFIERS, PROCESSORS, AND CONTROL ITEMS FROM EXISTING RACKS.

3.) REPURPOSE CERTAIN EXISTING AMPLIFIERS (UNDER ADD ALTERNATE 2.)

4.) REUSE EXISTING EQUIPMENT RACKS AND POWER CIRCUITS.

5.) REUSE EXISTING 70 VOLT PAGING / BACKSTAGE SYSTEM AND INTEGRATE INTO NEW DSP SYSTEM. VERIFY SYSTEM IS WORKING PRIOR TO DISCONNECTING. REPORT TO ARCHITECT/OWNER, IN WRITING, IF NOT WORKING.

6.) REUSE EXISTING PRODUCTION INTERCOM SYSTEM. VERIFY SYSTEM IS WORKING PRIOR TO DISCONNECTION OR RELOCATION. REPORT TO ARCHITECT/OWNER, IN WRITING, IF NOT WORKING.

7.) ALL MICROPHONES, STANDS AND MISCELLANEOUS HARDWARE ARE OWNER FURNISHED.

8.) EXCEPT FOR THAT DEFINED ABOVE, FURNISH AND INSTALL ALL NEW SOUND SYSTEM EQUIPMENT, CABLE, ACCESSORIES, TECHNICAL SUPPORT, LABOR AND TRAINING PER SPECIFICATIONS AND DRAWINGS.

CONCEPTUAL DRAWING
NOT FOR CONSTRUCTION
SUBMIT SHOP DRAWINGS

QUANTUM TECHNOLOGIES, INC.
991 DISCOVERY DR., HUNTSVILLE, AL 35806
256-922-1200

PRINCESS THEATER
AUDIO ONE LINE DIAGRAM
SOUND SYSTEM UPGRADE
2017

DFTSMN:
AUD ENGR:
VID ENGR:
MCH ENGR:

PLOT:

CHARGE NO.:

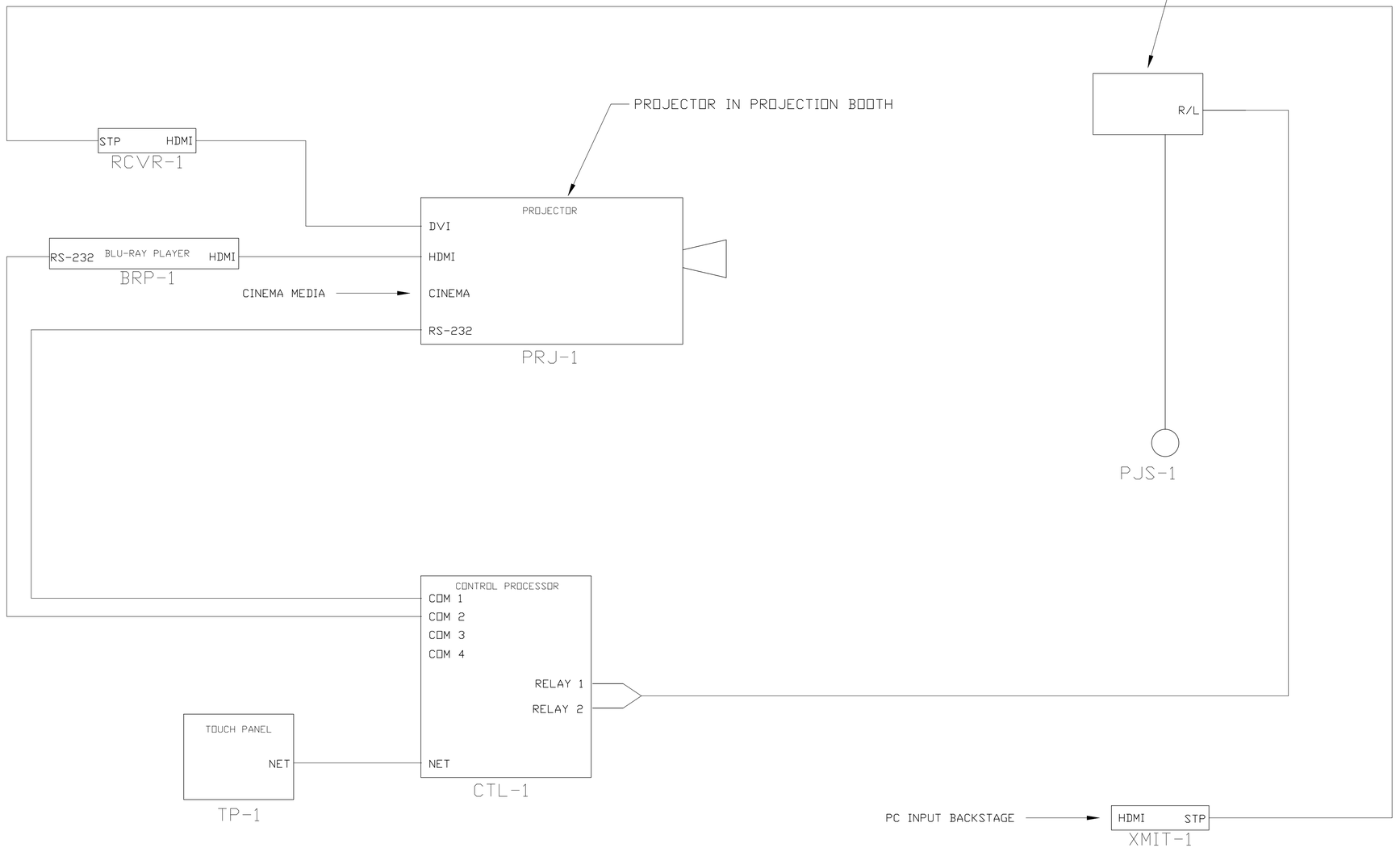
DWG NO:

CAD FILE REF:

SIZE: D | SHEET 2 OF 6

SCREEN LOCATED BETWEEN BORDER CURTAIN AND FIRE CURTAIN.

PROJECTOR IN PROJECTION BOOTH



ALTERNATE #2, ADD

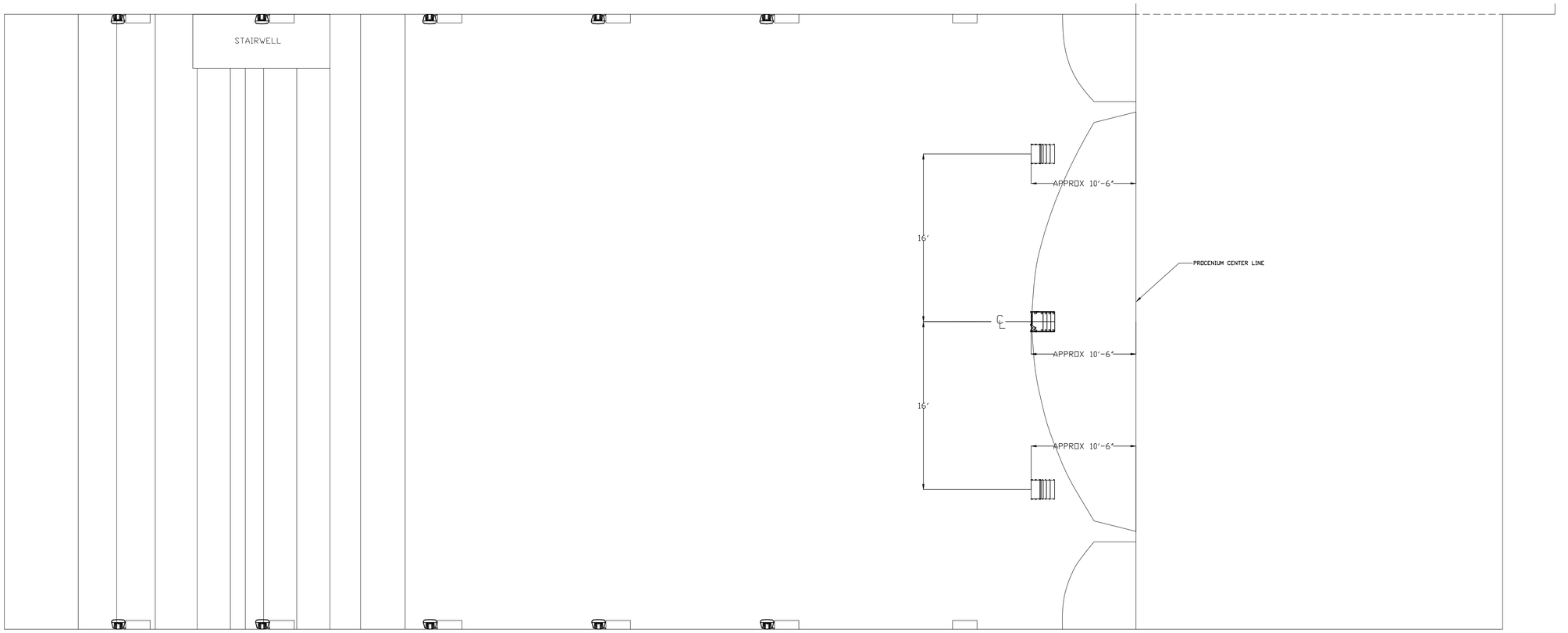
CONCEPTUAL DRAWING
NOT FOR CONSTRUCTION
SUBMIT SHOP DRAWINGS

QUANTUM TECHNOLOGIES, INC.
991 DISCOVERY DR., HUNTSVILLE, AL 35806
256-922-1200

PRINCESS THEATER
VIDEO & CONTROL ONE LINE DIAGRAM
SOUND SYSTEM UPGRADE
2017

DFTSMN:
AUD ENGR:
VID ENGR:
MCH ENGR:
PLOT:
CHARGE NO.:
DWG NO:
CAD FILE REF:

SIZE: D | SHEET 3 OF 6



SPEAKER LAYOUT PLAN VIEW

SCALE:
3/16" = 1'-0"

QUANTUM TECHNOLOGIES, INC.
991 DISCOVERY DR., HUNTSVILLE, AL 35806
256-922-1200

PRINCESS THEATER
SPEAKER LAYOUT

DFTSMN:
AUD ENGR:
VID ENGR:
MCH ENGR:

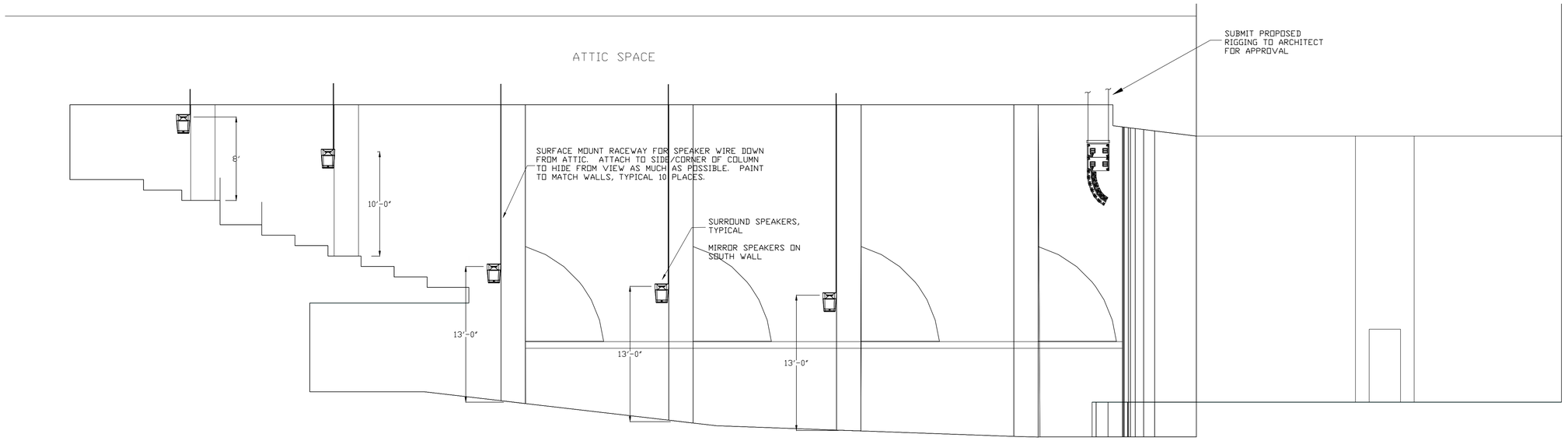
PLOT:

CHARGE NO.:

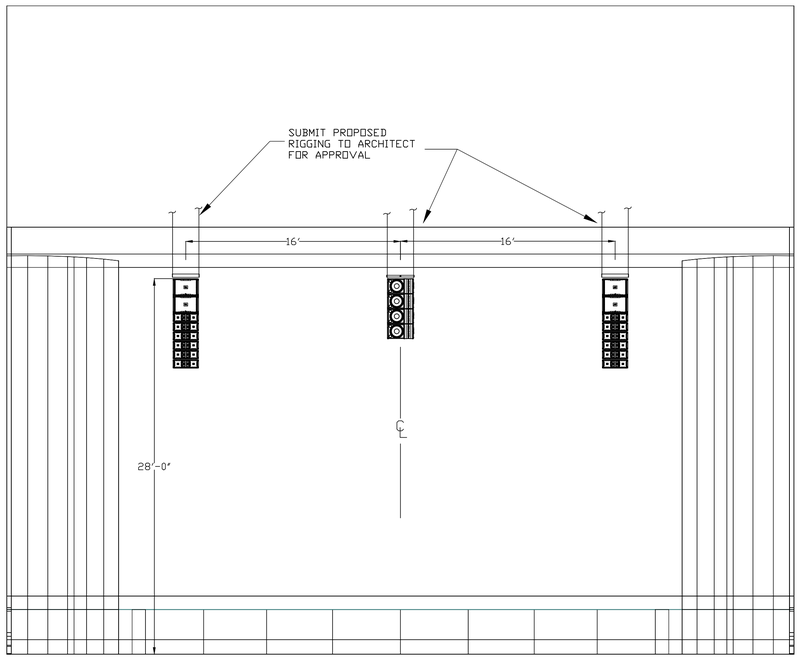
DWG NO:

CAD FILE REF:

SIZE: D | SHEET 4 OF 6



SPEAKER LOCATIONS ELEVATION



LINE ARRAY ELEVATION

SCALE:
3/16" = 1'-0"

QUANTUM TECHNOLOGIES, INC.
991 DISCOVERY DR., HUNTSVILLE, AL 35806
256-922-1200

PRINCESS THEATER
SPEAKER ELEVATIONS

DFTSMN: _____ _____
AUD ENGR: _____ _____
VID ENGR: _____ _____
MCH ENGR: _____ _____

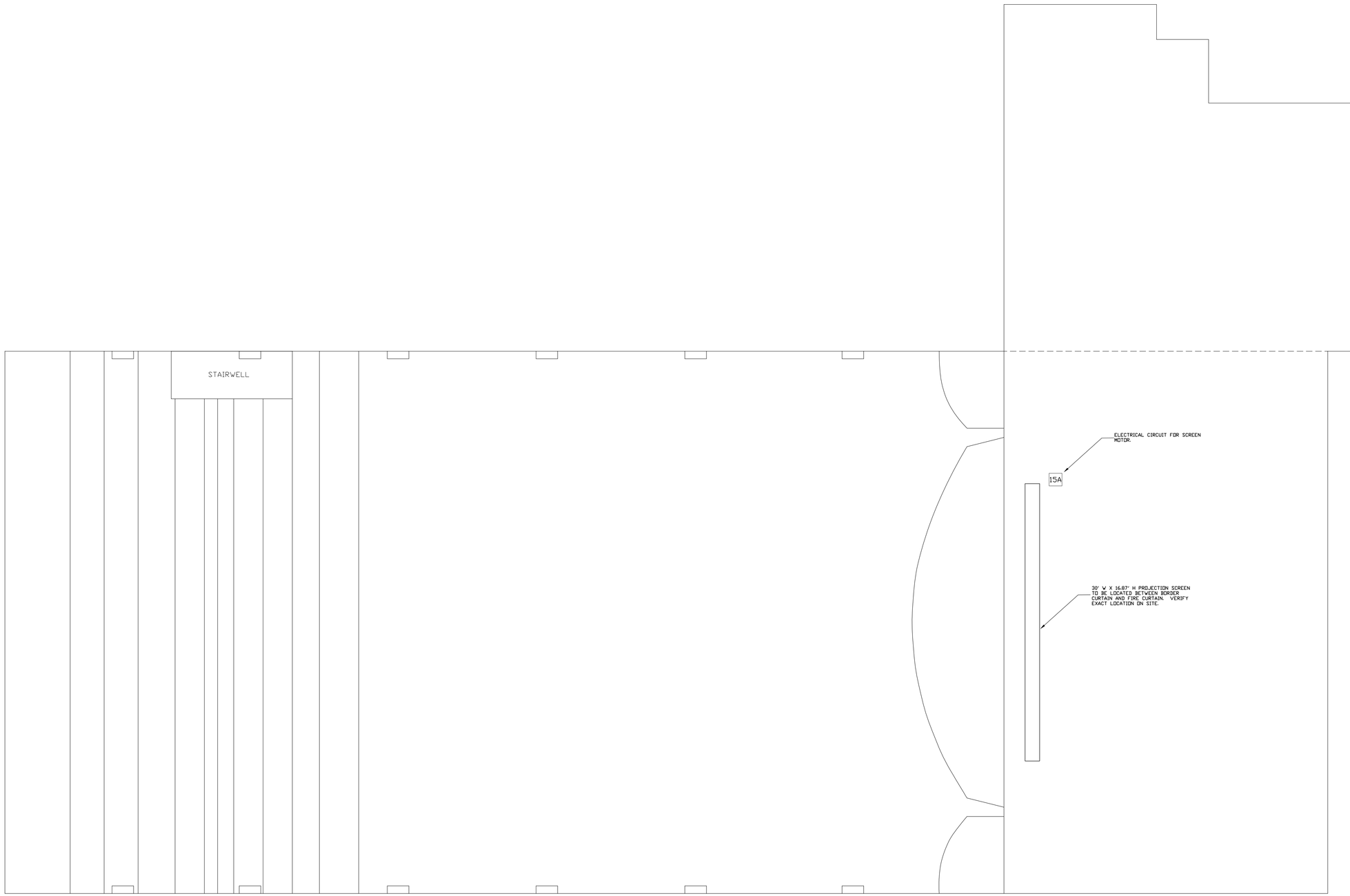
PLOT:

CHARGE NO.:

DWG NO:

CAD FILE REF:

SIZE: D | SHEET 5 OF 6



PROJECTION SCREEN LOCATION

SCALE:
3/16" = 1'-0"

QUANTUM
TECHNOLOGIES, INC.
991 DISCOVERY DR., HUNTSVILLE, AL 35806
256-922-1200

PRINCESS THEATER
VIDEO SCREEN LAYOUT

DFTSMN: _____ _____
AUD ENGR: _____ _____
VID ENGR: _____ _____
MCH ENGR: _____ _____

PLOT:

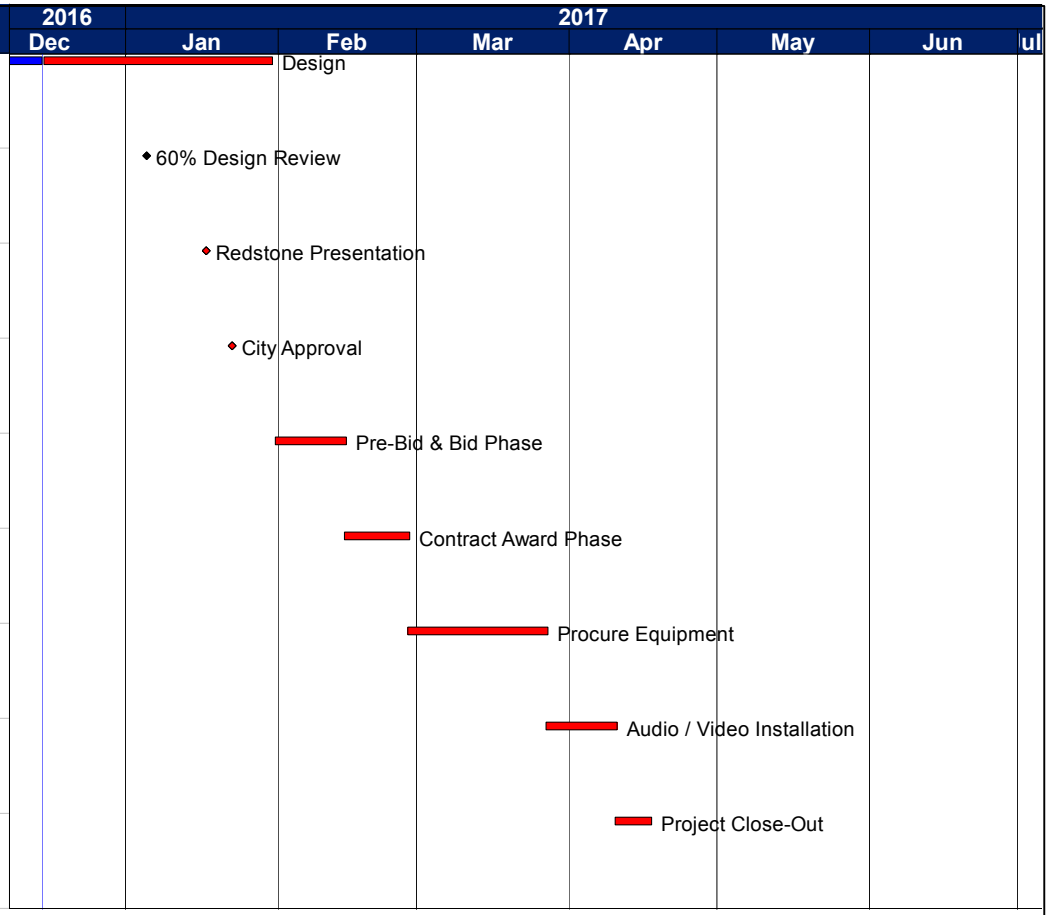
CHARGE NO.:

DWG NO:

CAD FILE REF:

SIZE: D | SHEET 6 OF 6

Activity ID	Activity Name	Start	Finish
A1010	Design	28-Nov-16 A	30-Jan-17
A1020	60% Design Review		05-Jan-17
A1030	Redstone Presentation		17-Jan-17*
A1000	City Approval		22-Jan-17*
A1040	Pre-Bid & Bid Phase	31-Jan-17	14-Feb-17
A1050	Contract Award Phase	14-Feb-17	27-Feb-17
A1060	Procure Equipment	27-Feb-17	27-Mar-17
A1070	Audio / Video Installation	27-Mar-17	10-Apr-17
A1080	Project Close-Out	10-Apr-17	17-Apr-17



HOAR PROGRAM MANAGEMENT

City Of Decatur
Princess Theater - Audio / Video Upgrade

Project ID:HPM 4133.01-00