- DATE: March 16, 2022
- PROJECT: C22-01 SAVANNAH ARTS ACADEMY ADDITION & RENOVATION SAVANNAH-CHATHAM COUNTY PUBLIC SCHOOL SYSTEM, SAVANNAH, GA
- BY: COGDELL & MENDRALA ARCHITECTS, PC (Architect) 517 East Congress Street Savannah, GA 31401

This Addendum forms a part of the Contract Documents and modifies the original Drawings and Project Manual dated February 2022 and identified as (GMP Documents).

- I. GENERAL INFORMATION:
- A. Not applicable for Addendum No. 01.
- II. SUBSTITUTION REQUESTS:
- A. 12 61 00 Fixed Audience Seating
 - 1. Manufacturer: KI; Model: Lancaster
 - a. Model and manufacturer are approved

III. RFI RESPONSE:

- A. Specification calls for the Hussey "Fusion" and other specified manufacturers have chair models that closely resemble the Hussey "Classic". Please confirm which style chair you are looking for
 - 1. Response: Hussey "Classic" is the desired chair and specification has been modified per this addendum to reflect this clarification.

B. I looked in the specifications but did not see termite or soil treatment. My question is does Savannah Arts Academy want a 5-year termite warranty on the existing building as well as the addition or just for the addition.

1. Response: 31 31 16 Termite Control specification has been added with regard to any new work.

C. The description of Alternate #6 for Savannah Arts Academy Addition states that the doors at Opening #500A in the Base Bid are Wood. The Door Schedule shows them as Hollow Metal. Which material is correct for the Base Bid?

1. Response: Opening is intended to be Wood. Please see revised Vol II – A8.01 for clarification. D. Openings 102.E and 127.2 are not scheduled with a Hardware Set and they do not occur in specified hardware sets in Division 087100. Do these openings require new hardware or is all hardware at these two openings existing to be reused?

1. Response: Door 102.E is to have hardware set 12.0. Door 127.2 is noted with remark 5, which is to replace existing glazing. Inclusion in the door schedule is specifying the type of glazing to be replaced. The door and hardware are to remain as existing. Note this glazing is changed as part of this addendum to ILG-2 instead of LG-2. Per Note 1, frame is to be modified as required to receive insulated glass.

C22-01 SAVANNAH ARTS ACADEMY ADDITION & RENOVATION SAVANNAH-CHATHAM COUNTY PUBLIC SCHOOL SYSTEM

- IV. PROJECT MANUAL:
- A. Section 08 71 00 DOOR HARDWARE
 - 1. In sub-section 3.8 HARDWARE SCHEDULE add door number 102.E to hardware set 12.0
- B. Section 12 61 00 FIXED AUDIENCE SEATING
 - 1. In sub-paragraph 2.3.A.1.: Change "Hussey Seating Company Fusion[™] to "Hussey Seating Company Quatro Classic."
 - 2. In sub-paragraph 2.3.A.1.a.: Change "KI Concerto Auditorium Chair" to "KI Lancaster"
 - 3. In sub-paragraphy 2.3.I.1: Change "Self-Rising Seat Mechanism: Torsion Springs, full fold." to "Self-Rising Seat Mechanism: Torsion Springs, full fold or gravity lift seat return to full-fold position."
- C. Section 26 60 11 EMERGENCY POWER SYSTEM NATURAL GAS
 - 1. Replace this specification in its entirety
- D. Section 27 41 16 INTEGRATED AUDIO-VIDEO COMMUNICATIONS & THEATER EQUIPMENT
 - 1. Replace this specification in its entirety
- E. Section 31 31 16 TERMITE CONTROL
 - 1. Add this specification in its entirety
- V. Drawings:
- A. Vol I RENOVATION:
 - 1. General:
 - a. T1.0 Volume I Title Sheet
 - 2. Architectural:
 - a. A8.01 DOOR SCHEDULE & ELEVATIONS: Replace this sheet entirely.
 - 3. Plumbing:
 - a. P1.04 PLUMBING PLAN MECHANICAL ROOM: Replace this sheet entirely.
 - 4. Mechanical:
 - a. M1.25 MECHANICAL PLAN MECHANICAL ROOM: Replace this sheet entirely.
 - 5. Electrical:
 - a. E2.04 POWER PLAN MECHANICAL ROOM: Replace this sheet entirely.
 - b. E3.04 FIRE ALARM PLAN MECHANICAL ROOM: Replace this sheet entirely.
 - 6. Lighting:
 - a. L2.04 LIGHTING PLAN MECHANICAL ROOM: Replace this sheet entirely.
 - 7. EPS:
 - a. EPS-1.2 1ST FLOOR ACOUSTIC SYSTEM PLAN: Replace this sheet entirely.
 - b. EPS-2.5 CURTAIN LAYOUT: Replace this sheet entirely.
 - c. EPS-3.1 AUDITORIUM SECTION: Replace this sheet entirely.
 - 8. PS:
 - a. PS-1.1 AUDIO FLOW DIAGRAM: This sheet added as part of this addendum
 - b. PS-1.2 AUDIO FLOW DIAGRAM (CONT.): This sheet added as part of this addendum
 - c. PS-1.3 AUDIO FLOW DIAGRAM (CONT.): This sheet added as part of this addendum
 - d. PS-1.4 AUDIO FLOW DIAGRAM (CONT.): This sheet added as part of this addendum
 - e. PS-1.5 VIDEO FLOW DIAGRAM: This sheet added as part of this addendum
 - f. PS-1.6 CONTROL FLOW DIAGRAM: This sheet added as part of this addendum
 - g. PS-1.7 LIGHTING FLOW DIAGRAM: This sheet added as part of this addendum
 - h. PS-1.8 POWER FLOW DIAGRAM: This sheet added as part of this addendum
- B. Vol II ADDITION:
 - 1. Civil:
 - a. C2.0 PROPOSED SITE LAYOUT: Replace this sheet entirely.
 - b. C2.1 FIRE ACCESS PLAN: Replace this sheet entirely.
 - c. C3.0 INITIAL SOIL EROSION CONTROL PLAN: Replace this sheet entirely.
 - d. C3.1 INTERMEDIATE SOIL EROSION CONTROL PLAN: Replace this sheet entirely.

- e. C3.2 FINAL SOIL EROSION CONTROL PLAN: Replace this sheet entirely.
- f. C4.1 GRADING PLAN B: Replace this sheet entirely.
- 2. Structural:
 - a. S1.01 FOUNDATION SECTIONS: Replace this sheet entirely.
- 3. Architectural:
 - a. A4.03 ENLARGED PARTIAL FLOOR PLANS: Replace this sheet entirely.
 - b. A8.01 DOOR SCHEDULE, DOOR TYPES, & HM FRAME ELEVATIONS: Replace this sheet entirely.
- 4. Fire Protection:
 - a. FC1.01 FIRE PROTECTION PLAN CAFETERIA ADDITION: Replace this sheet entirely.
- 5. Electrical:
 - a. EC2.01 POWER PLAN CAFETERIA ADDITION: Replace this sheet entirely.

END OF ADDENDUM No. 01

SECTION 26 60 11 - EMERGENCY POWER SYSTEM - NATURAL GAS

PART 1 - GENERAL

- 1.1 RELATED DOCUMENTS:
 - A. Drawings and general provisions of the Contract, including General and Special Conditions and Division 1 Specification Sections, apply to this Section.
 - B. Refer to Section 26 20 42 and 26 20 43 for information on the required selective coordination for emergency power system overcurrent devices. The coordination study is a requirement of NFPA 70 Articles 700 and 701.

1.2 SCOPE OF WORK:

- A. The Emergency Power Systems shall provide alternate AC power source for designated loads in the event there is an interruption of normal utility power. When required, the units shall automatically transfer the full rated load from the normal power source to the standby emergency generator. Upon return of normal power, the loads shall be automatically transferred back to the normal power source and the emergency generator shall automatically shut off, after a cool down period.
- B. The extent of Emergency Power Systems (EPS) work is indicated by drawings and by the requirements of this Section. Provide a complete automatically operated electric generating set of the size, type and operating characteristics described hereinafter, completely installed, tested and operative. All equipment, labor and materials necessary to accomplish this end shall be included, and the coordination of all required equipment and material shall be the responsibility of one manufacturer, who has an approved experience record in furnishing similar equipment.

1.3 QUALITY ASSURANCE:

- A. Manufacturers: The following manufacturers are acceptable provided they meet all requirements of the specifications:
 - 1. Onan/Cummings
 - 2. MTU Onsite Energy (Detroit Diesel)
 - 3. Generac
 - 4. Caterpillar
- B. Geographic Location:
 - 1. The installation / service center shall be located within 75 miles.
- C. Requirements:
 - 1. The installation / service center shall be factory authorized and shall be certified, in writing, by the manufacturer, as being responsible for installation and warranty work and shall be capable of performing work on the engine, generator, battery charger, fuel system, automatic transfer switch and all accessories which make up the complete emergency power system.
 - 2. The installation / service center shall provide on-site service within 4 hours of receipt of

service request.

- 3. The installation / service center shall maintain adequate levels of repair parts inventory.
- D. Compliance / Labels:
 - 1. Where a conflict between this document and NFPA 110 should arise, NFPA 110 shall govern.
 - 2. Manufacturer Testing:
 - a. Design prototype testing Shall be performed on similar models of the unit furnished on this project.
 - b. Final production testing of the engine/generator and automatic transfer switch provide certified test reports.
 - c. Field testing, by manufacturer's local representative
- 1.4 SERVICE / MAINTENANCE AGREEMENT:
 - A. The *engine / generator supplier* shall provide a service / maintenance contract covering one year of operation, from the date of Substantial Completion. There shall be no deductible costs, or other costs, to the Owner for these services. All costs shall be included in the bid for this project. *The agreement shall be made in the name of the Owner*. The service / maintenance agreement applies to the following items of equipment:
 - 1. Engine-Generator Set.
 - 2. Automatic Transfer Switch.
 - B. The *Maintenance agreement* shall include the following and also shall include services per the equipment manufacturer's applicable instruction manual:
 - 1. Lube, oil, and filter change
 - 2. Fuel filter change
 - 3. Engine tune-up with parts
 - 4. Service/replace air cleaner
 - 5. Check coolant level
 - 6. Test anti-freeze and adj.
 - 7. Inspect cooling system hoses
 - 8. Service/replace belts as required
 - 9. Check engine heater operation
 - 10. Check generator set for fuel, oil, and coolant leaks
 - 11. Check air intakes and outlets
 - 12. Drain exhaust line
 - 13. Inspect silencer
 - 14. Check battery charger operation and charge rate
 - 15. Check battery electrolyte levels and specific gravity
 - 16. Emergency system operation with load applied for one hour period
 - 17. Frequency check/governor adj.
 - 18. Check transfer switch and accessory operation
 - 19. Check engine alternator charge rate
 - 20. Check engine-generator gauge and indicator operation
 - 21. Check generator set controller operation including shutdown functions and emergency stop
 - 22. Check generator output voltage and adjust as necessary

- C. Maintenance shall be performed at intervals stated in equipment manufacturer's applicable instruction manuals except that the minimum service visits shall be four per year, and they shall be in Jan., Apr., July, and Oct.
- D. Maintenance shall be performed near the middle of the month during the owners normal working hours. Arrangements will be made with the owner prior to each service call in order to secure access to the equipment.
- E. The servicing agent will supply labor, supplies, parts and test equipment, as necessary to perform the service and preventative maintenance, at no additional cost.
- F. *The service agreement* shall include labor, supplies and replacement parts to restore the system to operating condition, *whether due to normal wear and tear or defects in workmanship or materials.*
 - 1. Response to *service* calls shall be made within 4 hours.
- G. Owner will maintain a regular recommended service procedure as recommended by the servicing agent. A record of these maintenance procedures will be maintained for reference.
- H. The servicing agent shall maintain a complete service history and necessary drawings and service procedure data for reference in service of the equipment. The agreement does not include any expense to repair damage caused by abuse, accident, theft, acts of a third person, forces of nature, alteration of equipment, or improper operation. The servicing agent shall maintain a representative stock of replacement parts for the complete emergency system and a competent factory-trained service organization.
- I. After each inspection, the owner will be furnished a written report detailing any conditions found and advising further service required, if any, to assure operating dependability of the equipment under contract.

1.01 COMPREHENSIVE WARRANTY:

A. The standby electric generating system components, complete genset and instrumentation panel shall be warranted by the manufacturer against defective materials and factory workmanship for a period of five (5) years. Such defective parts shall be repaired or replaced at the manufacturer's option, free of charge for parts, labor, and travel. The warranty period shall commence when the standby power system is first placed into service. Multiple warranties for individual components (engine, alternator, controls, etc.) will not be acceptable. Satisfactory warranty documents must be provided. Also, in the judgment of the specifying authority, the manufacturer supplying the warranty for the complete system must have the necessary financial strength and technical expertise with all components supplied to provide adequate warranty support.

1.5 SUBMITTALS:

A. Refer to Section 26 01 20 for requirements.

PART 2 - PRODUCTS

2.1 GENERAL:

- A. The system shall have the following characteristics:
 - 1. 100 kW / 125 kVA @ 0.8PF for Continuous Standby Service; based on use in outdoor housing geographic location Savannah, GA, USA.
 - 2. 3 phase, 4W, 480/277 Volts.
 - 3. Provide monitoring and controls necessary to achieve the following sequence of operation:
 - a. Transfer the emergency system load within the 10 second interval required by NFPA 110.
 - b. After the emergency load has been stabilized, transfer the optional standby load. Time delay shall be field selectable, 1-5 minutes. Set for 1 minute.
 - c. The emergency system loads shall take precedence over all other loads. An overload condition shall dump loads on the optional load standby system.

2.2 ENGINE:

- A. 1800 RPM.
- B. Design: 8- cylinder, water cooled, naturally aspirated.
- C. Bore: 5.31" Stroke: 6.50"
- D. Piston displacement: 864.71 cubic inches.
- E. Valves: per cylinder, single springs
- F. Crankshaft: Forged steel, counterweight-type.
- G. Connecting Rods: Forged steel with I-beam design.
- H. Compression ratio: 9.5:1
- I. Starting: 24V negative ground
- J. Cylinder block: Cast Iron.
- K. 40A battery charging alternator.
- L. Fuel System: Fueled by natural gas and supplied with a unit-mounted electric solenoid fuel shut-off valve, flexible fuel line and secondary fuel pressure regulator.
- M. Isochronous governor capable of +.25% steady-state frequency regulation.
- N. Air Cleaner: Dry element with restriction indicator.
- O. Lube Oil Capacity: 12 US Quarts, API CD 15W-40
- P. Lube Oil Filter: Single spin-on, full flow.
- Q. Positive displacement, full pressure lubrication oil pump, cartridge oil filters, dipstick and oil drain.
- R. Cooling system: High ambient 122 deg F unit mounted radiator, blower fan, water pump and thermostat.

2.3 GENERATOR:

- A. Salient-pole, brushless, 12 lead reconnectable type; self-ventilated, drip proof housing; amortisseur rotor windings and skewed for smooth voltage waveform. NEMA Class H insulation with fungus-resistant epoxy varnish.
- B. Brushless excitation system controlled by solid-state, anti-tracking voltage regulator capable of maintaining +/- 2% for any constant load from 0 to 100% of rating. Provide individual adjustments for voltage range, stability and volts/hertz operations.
- C. Voltage dip not to exceed 20% with one-second recovery within 2% of rated voltage, for one-step loads 0 to 90% of rating.

- D. Shall sustain at least 250% rated current for minimum of 10 seconds, based on a 3-phase symmetrical fault.
- E. Integral thermal-magnetic circuit breaker on output, coordinated not to trip under the conditions described above.

2.4 CONTROLLER:

- A. Set-mounted, microprocessor-based, with vibration isolation. Modular construction to allow field replacement and for field testing without starting the generator. Controller shall include:
 - 1. Fused DC circuit
 - 2. Complete two-wire start/stop control which shall operate on closure of remote contact device(s).
 - 3. Speed sensing and a second independent starter motor disengagement systems shall protect against starter engagement with a moving flywheel. Battery charging alternator voltage will not be acceptable for this purpose.
 - 4. The starting system shall be designed for restarting in the event of a false engine start, by permitting the engine to completely stop and then re-engage the starter.
 - 5. Cranking cycler with 15-second ON and OFF cranking periods. Crank control shall provide at least two cranking periods. Each cranking attempts shall be separated by appropriate rest periods. A sensing device shall automatically disconnect the starting circuit when the engine has started. If the engine has not started at completion of the starting program, the over cranking signal shall so indicated. The engine starting controls shall be locked out and no further starting controls shall be locked out and no further starting controls shall be locked out and no further starting controls shall be locked out and no further starting controls shall be locked out and no further starting controls shall be locked out and no further starting attempts shall take place until the overcranking device has been manually reset. A selector switch shall be incorporated in the automatic engine start and stop controls. It shall include an "off" position that prevents manual or automatic starting of the engine; a "manual" or "handcrank" position that permits the engine to be started manually by the pushbutton on the control cabinet and an "automatic" position which readies the system for automatic start or stop on demand of the control system.
 - 6. Overcrank protection designed to open the cranking circuit after 75 seconds if the engine fails to start.
 - 7. Circuitry to shut down the engine when signal for high coolant temperature, low oil pressure, or overspeed are received.
 - 8. Engine cooldown timer factory set at 5 minutes to permit unloaded running of the standby set after transfer of the load to normal.
 - 9. Three-position (Automatic-OFF-TEST) selector switch. In the TEST position, the engine shall start and run regardless of the position of the remote starting contacts. In the Automatic position, the engine shall start when contact in the remote-control circuit close and stop 5 minutes after these contacts open. In the OFF position, the engine shall not start even though the remote start contacts close. This position shall also provide for immediate shutdown in case of an emergency. Rest of any fault shall also be accomplished by putting the switch to OFF position.
 - 10. Indicating lights to signal:
 - a. Auxiliary Prealarm (Yellow)
 - b. Auxiliary Safety Shutdown (Red)
 - c. Switch "OFF" (Flashing Red)
 - d. Overcrank (Red)
 - e. Emergency Stop (Red)
 - f. High Water Temperature (Red)
 - g. Overspeed (Red)

C22-01 SAVANNAH ARTS ACADEMY ADDITION & RENOVATION SAVANNAH-CHATHAM COUNTY PUBLIC SCHOOL SYSTEM

- h. Low Oil Pressure (Red)
- i. Battery Charger Fault (Red)
- j. Low Battery Voltage (Red)
- k. Low Fuel (Red)
- I. System Ready (Green)
- m. Anti-High-Water Temperature (Yellow)
- n. Anti-Low Oil Pressure (Yellow)
- o. Low Coolant Temperature (Red)
- 11. Test button for indicating lights.
- 12. Alarm Horn with silencer switch per NFPA 110.
- 13. Terminals shall be provided for each signal in 8.10 above, plus additional terminals for common fault and common prealarm.
- 2.5 INSTRUMENT PANEL:
 - A. The instrument panel shall include:
 - 1. Dual range voltmeter 3-1/2 inch, 2% accuracy.
 - 2. Dual range ammeter phase selector switch.
 - 3. Voltmeter-ammeter phase selector switch.
 - 4. Lights to indicate high or low meter scale.
 - 5. Direct reading pointer-type frequency meter 3-1/2 inch, .5% accuracy, 45 to 65 Hz scale.
 - 6. Panel illuminating lights.
 - 7. Battery charging voltmeter.
 - 8. Coolant temperature gauge.
 - 9. Oil pressure gauge.
 - 10. Running time meter.
 - 11. Voltage adjust rheostat.

2.6 MOUNTING BASE:

- A. The engine-generator shall be skid-mounted on two, iron "I" or "C" type channels. The design shall provide vibration isolation between the genset and the mounting base.
- B. The frame design shall not inhibit easy access to the oil pan, after genset has been installed. Installations which require the use of a pump to drain the oil are not acceptable.

2.7 ACCESSORIES:

- A. The following accessories shall be installed:
 - 1. Block Heater, 120 Volt AC. Thermostatically controlled and sized to maintain engine coolant at 90°F (32°C) to meet the start-up requirements of NFPA 110, Level 1.
 - 2. Generator strip heater, 120-volt, single phase for high humidity applications.
 - 3. Over voltage protection will shut down the unit after one second of 15% or more overvoltage. Note: Sensitive equipment may suffer damage in less than one second of an overvoltage condition. On-line equipment requiring faster shutdown should have its own overvoltage protection.
 - 4. Weather housing, constructed of rugged steel, cleaned, phosphated, and electrocoat painted inside and out with rust inhibiting primer and exterior coat of the manufacturer's standard color. Provide hinged, double doors on each side to give easy access to the genset, and a rear door to allow access to the control panel. All door handles shall be

key-lock type. Skid and floor design shall include a removable panel below the engine oil pan. All shelters shall come ready for job-installation. Top-mounted exhaust silencer with rain shield over the exhaust opening. Note: A 120-volt battery box heater shall be included.

- 5. Battery rack, battery cables, 12-volt batteries capable of delivering the required minimum cold-cranking amps required at 0°F.
- 6. 10-Ampere automatic float and equalize battery charger with +/- 1% constant voltage regulation from no load to full load over +/- 10% AC input line variation, current limited during engine cranking and short circuit conditions, temperature compensated for ambients from -40°C to +60°C, 5% accurate voltmeter and ammeter, fused, reverse polarity and transient protected. Provide alarm circuit board to meet the requirements of NFPA 110 for low battery voltage, high battery voltage, and battery charger malfunction.
- 7. Gas-proof, seamless, stainless steel, flexible exhaust connection, and engine exhaust silencer rated for critical application. Exhaust noise shall be limited to 85 dBA as measured at 10 feet in a free-field environment.
- 8. 16-Light remote annunciator shall monitor all controller functions described in paragraph 2.4.A.10 of the controller section, line power and generator power monitoring, and docking station power monitoring. An integral lamp test and horn silencer switch shall be included, as required to meet NFPA 110. Provide all wiring between remote annunciator and generator set / docking station.

2.8 AUTOMATIC TRANSFER SWITCH:

- A. The automatic transfer switch shall consist of a power transfer module and a control module, interconnected to provided complete automatic operation. Enclosure type shall be NEMA 1. The automatic transfer switch shall be mechanically held and electrically operated by a single solenoid mechanism energized from the source to which the load is to be transferred. The switch shall be rated for continuous duty and be inherently double throw. *The switch shall be open transition (break before make) and be mechanically interlocked to ensure only one of two possible positions normal or emergency.* The automatic transfer switch shall be suitable for use with and supplied by the manufacturer of the standby generator to be furnished for this project. The switch shall be 4-pole, rated for use on a 480Y/277, 3-phase, 4-wire system. *Withstand rating shall be at least the same as the interrupting rating as the feeder breaker on the normal power input.* Basis of design: ASCO Series 300.
- B. Automatic transfer switches utilizing components of molded-case circuit breakers, contactors, or parts thereof which have not been intended for continuous duty or repetitive load transfer switching are not acceptable.
- C. All main contacts shall be of silver composition. The operating transfer time in either directions shall not exceed one-sixth (1/6) of a second.
- D. The control module shall be supplied with a protective cover and be mounted separately from the transfer switch for ease of maintenance. The interconnecting wiring harness shall include a disconnect plug to disconnect all wires including both sources of control power for routine maintenance.
- E. Sensing and control logic shall be solid-state and mounted on plug-in printed circuit boards. Printed circuit boards shall be keyed to prevent incorrect installation. Interfacing relays shall be industrial control grade plug-in type with dust covers.
- F. All standard control features shall be contained in this control module and will be equal to

ASCO Group G for 3 phase service. This group contains all of the following:

- 1. Voltage and Frequency Sensing
- 2. Time Delays
- 3. Engine Control Contacts
- 4. Test Switch
- 5. Indicators
- G. Provide the following accessories:
 - 1. Engine generator exercising timer with toggle switch to select load, no-load operation. Adjustable in 15-minute increments. Factory set at 20 minutes minimum each week unless otherwise specified. Equivalent to ASCO 11BE.
 - 2. Switched neutral transfer contact.
- H. Inspection of all contacts (movable and stationary) shall be possible from the front of the switch without disassembly of operating linkages and without disconnections of power conductors. A manual operating handle shall be provided for maintenance purposes.
- I. The automatic transfer switch shall conform to the requirements of NEMA Standard ICS2-447 and Underwriters Laboratories UL 1008.
- J. The complete automatic transfer switch shall be tested as to ensure proper operation of the individual components and correct overall sequence of operation and to ensure that the operating transfer time, voltage, frequency and time delay settings are in compliance with the specification requirements. Submittals for approval shall include wiring diagrams, dimensional data, and complete description of operation.
- K. The transfer switch shall be furnished with an operator's manual providing installation and operating instructions.

2.9 GENERATOR DOCKING STATION

- A. Manufacturers: Subject to compliance with requirements, provide products by the following:
 - 1. TRYSTAR, or prior approved equal.
- B. Docking station shall include 16 Series Camlok Panel Mounts for use as connection to Portable Generator.
- C. Entire package must be listed to ETL or UL 1008 Standards. UL listing of individual components is not acceptable.
- D. Enclosures:
 - 1. NEMA 3R rain-tight, 304 GA aluminum enclosure
 - a. Pad-lockable front door shall include a hinged access plate at the bottom for entry of cables from portable generator or portable load bank. NEMA 3R integrity shall be maintained with access plate open for cable entry.
 - b. Front and side through a front access panel shall be accessible for maintenance.
 - c. Top, side, and bottom through a front access panel shall be accessible for

permanent cabling.

- 2. Finishes:
 - a. Paint after fabrication. Powder coated Hammertone Gray.
- E. Phase, Neutral, and Ground Buses:
 - 1. Material: Silver-plated Copper
 - 2. Equipment Ground Bus: bonded to box.
 - 3. Isolated Ground Bus: insulated from box.
 - 4. Ground Bus: 50% of phase size.
 - 5. Neutral Bus: Neutral bus rated 100 percent of phase bus.
 - 6. Round edges on bus.
- F. Temporary generator connectors shall be Camlok style mounted on gland plate.
 - 1. Camlok shall be color coded according to system voltage
 - a. A phase Brown
 - b. B phase Orange
 - c. C phase Yellow
 - d. N Neutral White
 - e. G Ground Green
- G. Temporary connectors shall include protective flip lids to prevent accidental contact.
- H. Permanent connectors shall be broad range set-screw type, located behind an aluminum barrier.
- I. Short Circuit & Withstand Rating
 - 1. Shall be minimum 65KAIC unless otherwise indicated on drawings.
- J. Voltage & Amperage:
 - 1. 150A, 480Y/277V
- K. Phase Rotation Monitor Device:
 - 1. Phase monitoring relay to be Siemens 3U4512-1AR20 or equal.
- L. Breaker Disconnect:
 - 1. Must be UL 489 Listed Breaker
 - 2. Breakers shall be removable for service and maintenance.
 - 3. Breaker shall have a pair of NO/NC auxiliary contacts to connect back to permanent generator remote annunciator panel.
- M. Additional accessories shall be included in submittal drawings as follows:
 - 1. Two Wire Auto Start
 - 2. Battery Charger Receptacle 20A GFCI 125V
 - 3. Block Heater Receptacle 30A L5-30 125V
 - 4. Extra Depth for Bottom Conduit Access
 - 5. Kirk Key Door Interlock

PART 3 - EXECUTION

3.1 INSTALLATION:

- A. Install genset on concrete pad whose dimensions exceed the weatherproof housing by at least six inches, all sides. Pad thickness shall be 12". Concrete shall be 2500 psi, reinforced with 8 ga wire fabric. Anchor genset to concrete pad as recommended by the manufacturer.
- B. Provide branch circuit wiring and necessary breakers for generator accessories.
- C. Wall mount the automatic transfer switch where indicated.
- D. Provide factory representative to conduct startup and testing. Testing shall comply with the requirements of NFPA 110, paragraph 5-13, "Installation Acceptance". Provide resistive load bank to conduct the tests.
- E. Upon completion of testing, the factory representative shall provide 8-hours of on-site training of the Owner's designated personnel.
- F. All wiring and interconnections shall be in accordance with commercial electrical standards. Installation drawings and complete wiring diagrams shall be furnished to the Owner.

END OF SECTION 26 60 11

SECTION 274116 – INTEGRATED AUDIO-VIDEO COMMUNICATIONS & THEATER EQUIPMENT

PART 1 - GENERAL

- 1.1.1 GENERAL
 - A. This specification outlines Presentation Systems Contractor (PSC) requirements to furnish and install presentation systems and all low voltage wiring required for completely operational auditorium production systems in the Savannah Arts Academy Addition and Renovation project. All necessary equipment for sound, theater lighting, rigging, curtains, video, and control systems shall be required and provided by the PSC for a completely operational theater production and presentation system. A separate bid for all work required in conjunction with the stated A/V package for a complete and functioning electrical package.
 - B. The systems shall not be considered complete until the completion of as-built documentation, final system commissioning, and facility personnel training. This facet of the services to be provided by the PSC is deemed very important to the satisfactory completion of the contract. To that end a final payment reserve of 10% of the system purchase price shall be held from payment until the documentation package and training described in Part III are delivered.

1.1.2 RELATED SECTIONS

- A. Architectural
- B. Electrical
- C. Fire Protection
- D. Mechanical

1.1.3 INTENT AND INTERPRETATIONS

- A. It is the intent of the Construction Documents that the PSC shall include all items necessary for the proper execution and completion of the project, resulting in complete and fully operational system(s) ready for the Owner's use, in full compliance with all applicable standards, codes and ordinances.
 - 1. Work or product not specifically indicated in the Construction Documents, but which are necessary to result in complete and fully operational system(s) ready for the Owner's use, shall be provided by the PSC.
 - 2. The specification of certain products in the Construction Documents shall not be construed as a release from furnishing such additional products and materials necessary to furnish complete and fully operational system(s) ready for the Owner's use.
- B. In the event that discrepancies exist or required items or details have been omitted in the Construction Documents, the PSC shall notify the Owner/Consultant in writing ten (10) days prior to the bid date. Failure to do so shall be construed as willingness to provide a complete and fully operational system within the amount bid by the PSC. Where such discrepancies are not brought to the attention of the Owner/Consultant, the most stringent (costly) requirements shall be construed to be the basis for the PSC's bid.
- C. Drawings and Specifications are complementary. Items required by either are binding as though they are required by both. In the event of conflict between the requirements of the Drawings and the Specifications:
 - 1. With regards to the preparation of proposals and/or bids, the PSC shall assume the more stringent (costly) condition shall prevail. The PSC shall notify the Owner/Consultant of such a minimum ten (10) days prior to the bid date.
 - 2. With regards to actual construction, the PSC shall notify the Owner/Consultant and await the Owner's/Consultant's instruction prior to proceeding with procurement and installation.
- D. Drawings:

- 1. Drawings are diagrammatic and approximate in character, are not intended to show all features of required work, and do not necessarily indicate every required component.
- 2. Symbols used on the Drawings are defined in the legend on the Drawings. Symbols indicated on the legend may not necessarily be required.

1.1.4 DEFINITIONS

- A. The term "Contractor", "Supplier", or "Presentation Systems Contractor (PSC)" as used herein refers to the party responsible for supplying all services and equipment covered herein and on related drawings.
- B. The term "Owner" shall refer to Savannah Chatham Public School System.
- C. The term "Consultant" shall refer to the consultant who is responsible for the design of the audio, video, and control systems.
- D. The term "Electrical Contractor" shall refer to the Division 26 contractor.
- E. The term "provide" will mean to supply, install, verify performance and coordinate interconnection and power.
- F. Specialized terms particular to technical systems and related work shall be used in the following manner, in accordance with:
 - 1. Captions on related drawings.
 - 2. Generally recognized audio engineering and production usage.
 - 3. Relevant usage and definitions of handbooks, guidebooks or trade group recommendations by manufacturers' associations or professional and engineering societies such as SMPTE, ICIA, UL, and NEMA.

1.1.5 RELATED DOCUMENTS

- A. The PSC shall read, review and understand all documents listed below prior to bidding or proceeding with work. The PSC shall also refer to and understand all other related documents indicated herein. Failure to familiarize itself with the construction documents will not relieve the PSC of its responsibility to complete the work in accordance with the construction documents.
- B. Division 1: Applicable provisions of Division 1 shall govern all work under this section.
- C. Contract: In addition to the conditions and work described herein, all conditions of the Contract shall apply.
- D. Presentation System Drawings
 - 1. EPS-L LEGEND
 - 2. EPS-1.1 FIRST FLOOR AV PLAN
 - 3. EPS-1.2 FIRST FLOOR ACOUSTIC SYSTEM PLAN REVISE ADDENDUM 1
 - 4. EPS-1.3 FIRST FLOOR LIGHTING PLAN
 - 5. EPS-1.4 SECOND FLOOR LIGHTING PLAN
 - 6. EPS-1.5 THIRD FLOOR AV PLAN
 - 7. EPS-1.6 THIRD FLOOR ACOUSTIC SYSTEM PLAN
 - 8. EPS-2.1 FIRST FLOOR RCP
 - 9. EPS-2.2 FIRST FLOOR ACOUSTIC SYSTEM RCP
 - 10. EPS-2.3 THIRD FLOOR RCP
 - 11. EPS-2.4 LIGHTING RCP
 - 12. EPS-2.5 CURTAIN LAYOUT REVISE ADDENDUM 1
 - 13. EPS-3.1 AUDITORIUM SECTION **REVISE ADDENDUM 1**
 - 14. EPS-3.2 MOTORIZED HOIST RCP
 - 15. EPS-4.1 PRODUCTION PANEL DETAILS
 - 16. EPS-4.2 FACE PLATE DETAILS
 - 17. EPS-4.3 LOUDSPEAKER DETAILS
 - 18. EPS-4.4 EQUIPMENT RACK DETAILS
 - 19. EPS-4.5 HOIST DETAILS

20. EPS-4.6	LIGHTING DETAILS
21. EPS 4.7	VIDEO SYSTEM DETAILS
22. PS-1.1	AUDITORIUM AUDIO FLOW DIAGRAM <u>ADDED ADDENDUM 1</u>
23. PS-1.2	AUDITORIUM AUDIO FLOW DIAGRAM <u>ADDED ADDENDUM 1</u>
24. PS-1.3	AUDITORIUM AUDIO FLOW DIAGRAM <u>ADDED ADDENDUM 1</u>
25. PS-1.4	AUDITORIUM AUDIO FLOW DIAGRAM <u>ADDED ADDENDUM 1</u>
26. PS-1.5	AUDITORIUM VIDEO FLOW DIAGRAM <u>ADDED ADDENDUM 1</u>
27. PS-1.6	AUDITORIUM CONTROL FLOW DIAGRAM ADDED ADDENDUM 1
28. PS-1.7	AUDITORIUM LIGHTING CONTROL FLOW DIAGRAM ADDED ADDENDUM 1
29. PS-1.7	AUDITORIUM POWER CONTROL FLOW DIAGRAM ADDED ADDENDUM 1

1.6 DESCRIPTION OF SYSTEMS

A. AUDITORIUM SOUND SYSTEM

- 1. The auditorium shall be equipped to support presentations and productions of all sizes with high quality amplification of speech, program material content playback, and presentation audio for video playback. There will be 2 primary operational modes of the sound system.
- 2. The first mode will be the *Production Mode*. In this mode, primarily for theatrical productions or band / concert performances, the operator will have constant hands-on manual control of the mix and levels.
- 3. The second mode will be the *Presentation Mode*. In this mode, the audio levels from the laptop or other content and the presenter's microphone level will be controlled from the control system's touch panel. This system operates independently from the production equipment.
- 4. In the event there is a fire alarm instance, the sound system shall mute. Coordination with the fire alarm subcontractor is key to obtain a contact closure or other signal to engage the audio system accordingly.
- 5. The main mixing console shall have a minimum of 64 channel mixing capability. Inputs on stage shall be plugged into the mixers stage racks that are located in the equipment racks on each side of the stage. There shall be 2 locations from which to mix from, one in the control room and the other at the FOH position in the back of house. MADI connections from stage rack(s) shall be available at both locations.
- 6. The auditorium main loudspeaker system shall consist of a left/right configuration with subwoofers. Programmed settings such as equalization, limiting, and delay in the DSP, shall be done in a way as to keep the final room tuning settings away from normal operation and operators and shall be password protected.
- 7. There shall be audio inputs and outputs available on stage left, stage right, upstage and down stage floor boxes. There will be 2 wall boxes in the orchestra pit containing I/O as detailed on the drawings.
- 8. There shall be 4 discreet monitor mix feeds for floor wedges, side fills, or passive hotspots. Distribute the 4 monitor mix outputs to I/O plates around the stage according to flow drawings.
- 9. There shall be (connectivity) for wired personal in-ear mixing. In-ear to be added later by adding an optional card to the console to feed the in-ear mixers.
- 10. There shall be (2) audience ambient microphones to be used for live feeds to in-ear, ALS, record purposes, etc.
- 11. There shall be a RF based assisted listening system for the auditorium. The appropriate number of receivers shall be included in accordance with ADA regulations. Receivers shall have the ability to transmit audio to T-coil hearing aids and conventional ear-phones as well.
- 12. There shall be a distributed background and paging system. This system will serve lobbies, restrooms, green room, control room, foyers / lobbies, offices, workrooms, and dressing rooms. Additional content for these areas shall be a chime / tone generator to correspond to the amount of time left before curtain goes up. There shall be a paging microphone at the stage managers position and the control room.

13. A 2-channel production intercom system shall provide comfortable, intelligible communication between the various technicians, director, stage manager, and talent. Headset stations are located at the sound & lighting control positions, stage left, catwalk positions (4 ea), and will have press to talk wall-mounted stations in each dressing room. The main station will be located in the Stage Manager's Panel. In addition to these locations of intercom, there shall be intercom drops located in the dimmer rack room, stage, catwalk, and green/lobby area. Refer to drawings for all intercom drops.

B. AUDITORIUM VIDEO/PROJECTION SYSTEM

- The auditorium shall be equipped to support lectures and productions with high definition imaging of computer and media playback sources. The projector shall be mounted on the upstage wall. There shall be a floor boxes down stage for the presenter to connect. There shall also be a feed in this floor box or stage wall panel to feed a roll-around LCD confidence monitor for the presenter. This will allow the presenter to see what's on the screen without the need to turn around.
- 2. There shall be a rear projection, electric screen suspended from a batten as shown on the drawings. The aspect ratio of the screen shall be 16:10.
- 3. Computer presentations to be conducted from both the control booth and the stage. Media playback includes a Blu-Ray, computer, or BluRay / DVD, located in control booth. System is to allow all digital inputs, HDMI, and is HDCP compliant.
- 4. A dedicated HD PTZ camera located on the face of the balcony will supply video to the IPTV system, (IPTV by others). IPTV will include displays in locations like the dressing rooms, offices, backstage, etc. The camera shall feed the AV system to be used for overflow, recording, or other production needs.
- 5. There shall be a rack mounted HD LCD monitor in the stage manager rack for previewing content and for seeing the stage from the balcony PTZ camera.

C. AUDITORIUM CONTROL SYSTEM

- 1. The remote-control system shall provide integration and control of key components using wired touch panels. Programming shall focus on operation of the presentation system ranging from simple podium events to manual operated productions. Menu shall include, but not limited to the following.
 - 1) Presentation or Production Mode
 - 2) Lighting pre-set recall
 - a. Contractor to provide 6 lighting presets per the owners guidance.
 - 3) System power cycle screen
 - a. All AV
 - b. Projector power
 - 4) A/V switcher screen
 - a. Source selection
 - i. Stage Laptop
 - ii. Booth Sources
 - iii. Stage Video
 - iv. Stage audio (MP3/CD)
 - b. Source audio volume in presentation mode
 - 5) PTZ camera control
 - 6) Media player commands
 - a. Bluray transport commands and menu functions
 - 7) Audio Control Screen
 - a. Level and mute for House mic A
 - b. Level and mute for House wireless B

- c. Route mic A to house, route mic A to backstage
- d. Route wireless B to house, route wireless B to backstage

D. AUDITORIUM LIGHTING

- 1. The auditorium shall be equipped with a state-of-the-art lighting system to support theatrical productions, projection presentations, and presenter meetings. Refer to lighting drawings for details on placements of lighting instruments.
- 2. The lighting console and dimming system shall be used to control the theatrical lights and the architectural house lights in and around the auditorium area. (DELETE-The lighting system in the Conference Center shall be a stand-alone system and not tied to the auditorium system) All fixtures shall be supplied complete with safety cable, c-clamp, lamp, lenses, DMX, power cables and extension cables as needed.
- 3. <u>The existing ETC SR48 dimmer rack shall be Upgraded with the latest control</u> <u>electronics retrofit kit with new CEM3, backplane, fan and all new dim/relay modules.</u> <u>House lights shall be controllable from walk-through entry stations at specified</u> <u>auditorium entrances and controls in the control booth. Control will be via ACN</u> Network out to DMX Nodes for stage lighting and 0-10V Gateways for house lighting.
- 4. <u>Stage lighting electric distribution shall be a connector strip at FOH and plug boxes at</u> tormentor locations. Overstage shall have 6 – 60' multi circuit drop cables with Veam 6circuit fan-outs with stage pin connectors. Each drop cable will have counterweighted pick lines to lift the cable stack out of sight line.
- 5. There shall be wall box locations on stage for lighting receptacles for portable side lights, groundrows, and practicals. Refer to drawings for exact location.
- 6. The Contractor is responsible for programming the following production scenes for initial commissioning.
 - 1) Band/Choral (full stage wash)
 - 2) Podium or Presentation Event
 - 3) House lights and presets for remote control system to recall
 - 4) Owner specified #1
- E. CURTAINS
 - Stage curtains that travel shall be on motorized battens. <u>50%</u> fullness, <u>25oz.</u>, synthetic material, color <u>TBD</u>.
 - 2. Material shall be the Charisma fabric
 - 3. Rear flat muslin cyc on a motorized batten to move when the rear projector is in use.
 - **4.** Material to be flame resistant
 - 5. Curtain motor for Grand Drape.
 - a. Track mounted
 - b. LV control to wall switch and Stage Managers AV Rack.
- F. RIGGING SYSTEMS- Consult rigging drawing set. The rigging shall consist of line sets with:
 - 1. Rigging systems contractor to remove all existing stage rigging systems, battens, curtain tracks, curtains for clear stage, grid, and stage house.
 - 2. Motorized Rigging Set Requirements
 - a. Provide 10 line-shaft winch sets, each set consisting of (but not limited to) the following:
 - i. Capacity -- 1000 LBS.
 - ii. Speed -- 20 FPM
 - iii. Truss Batten Travel -- 34 feet
 - iv. Drum Diameter -- 8 inches
 - v. Cable Size -- 1/4"
 - vi. Number of Drums -- 4
 - vii. Type of Limit Switches -- 4 Position

- b. General Standards
- c. Paint as required under this section shall be the manufacturer's standard finish and Color as noted.
- d. All equipment items shall be new and conform with applicable provisions of Underwriters' Laboratories and American Standards Association.
- e. Where acceptable equipment items are specified by catalog number only, device shall meet all published manufacturer's specifications. Where quantities are not given, refer to drawings. Where two or more products are listed, contractor may use either, at his discretion. Equipment shall not be substituted without specific written approval by the Architect/Architect's Representative under the substitution paragraphs of these specifications.
- 3. Materials
 - a. All turnbuckles, clips, tracks, chains and other items of incidental hardware shall be furnished plated or painted. Wire rope shall be galvanized. Fasteners, chains and other miscellaneous hardware shall be either cadmium or zinc plated.
 - b. All materials used in this project shall be new, unused and of the latest design. Refurbished materials are not permitted.
 - c. In order to establish minimum standards of safety, a minimum factor of 8 shall be used for all equipment and hardware used on this project. In addition, the following factors shall be used:
 - i. Cables and fittings: 8 Safety Factor
 - ii. Cable blending ratio: 30 times diameter
 - iii. Max: fleet angle 1 ¹/₂ degrees
 - iv. Steel: 1/5 of yield
 - v. Bearings: Two times required load at full for 2000 hours
- 4. MOTORIZED LINESHAFT RIGGING REQUIREMENTS:
 - a. Furnish and install Motorized Line-shaft winches to raise and lower the stage battens and other stage equipment as specified herein.
 - b. Each winch shall operate at a fixed speed.
 - c. The batten shall travel from a low trim of 4'-0" above stage floor to approximately 1'-6" below the winch assemble.
 - d. Each line-shaft winch shall have drums alternately grooved for right- and left-hand winding to prevent the batten from traveling.
 - e. Drums shall be supported on each side with a flange block assembly.
 - f. Miscellaneous hardware such as battens, cable, etc. shall follow ANSI standards and specifications.
- 5. WINCH SYSTEM
 - a. The gear reducer shall be a double reduction worm gear or a combination right angle helical worm gear reducer. Reducer shall have a minimum service factor of 1.25.
 - b. The AC brake-motor shall be 1750 RPM horsepower as required, three phase, 60 Hz with an integral brake. The brake shall be rated for 200% of the motor torque and be sized to stop and hold the moving load within four inches. Brake shall automatically be applied in case of power failure. Motor shall have a 1.0 service factor.
 - c. The cable drum diameter shall be a minimum of 32 times the cable diameter. The cable drums shall be of the proper length to hold all of the cable in a single layer. The cables shall be prevented from jumping out of the grooves by two 3/8 cable retainers. The drum shall hold a minimum of the cable required for travel plus three dead wraps. Drums are to be helically grooved for the appropriately sized cable and have key-slots for the easy connection of cables. The drum hub shall be keyed directly to the continuous shaft off the reducer. Chain or belt drives are not acceptable.
 - d. The winch frame shall be constructed of structural steel members, compactly designed to support the winch components and load in a minimum amount of space. In the frame shall be incorporated a cable keeper bar that is located next to the

grooves in each drum to prevent lines from jumping grooves and slack lines from unwinding.

- e. Shaft will be a steel drive sized and of material to prevent excess twisting due to load torque. Maximum twist to be 0.25 degrees per linear foot.
- f. Shaft coupling to be flange type gear, or solid couplings. Chain couplings are not acceptable.
- g. The integral line-shaft frame designed to support and align each drum, shall be made of structural channel, tubing, or wide flange beams. Systems without these integral members shall not be acceptable.
- h. An internal brake shall be installed to stop a runaway system at 1 ½ times the rated speed.
- i. Each winch shall have an adjustable four element limit switch which stops the winch at the upper and lower extremes of travel. Two of the elements shall be back-up or over travel limits, wired such that the winch cannot be operated until the cause of normal limit failure is determined and repaired.
- 6. LOW VOLTAGE MOTOR CONTROL PANEL:
 - a. Push Button Wall Mounted 24volt Controller.
 - b. Push Button Control Station.
 - c. Control stations shall be wall mounted NEMA 1 enclosure, containing hold-to-run Up and Down pushbuttons for each hoist. A key operated On/Off switch with green LED indicating "Power On" shall be provided.
 - d. Provide main circuit breaker for the panel that must interlock with the panel door. Circuit breaker shall be sized to operate all motors at one time.
 - e. A red, mushroom head emergency stop pushbutton shall be provided, which shall disconnect power to the hoist through a circuit meeting NFPA-79 (Electrical Standards for Industrial Machinery) requirement.
 - f. Panel components including pushbuttons, key switches, switches, E-stop switches, and the like shall be industrial grade, heavy-duty components with 7/8 inch (22 mm) operators. Indicators shall be 5/16 inch (8 mm) minimum diameter.
 - g. Motor drives shall be Eurodrive
- 7. PIPE BATTENS:
 - a. Truss Pipe Battens shall be 1-1/2" in diameter schedule 40 pipe fabricated into "ladder battens" as indicated on the drawings.
 - b. All battens shall be painted black to prevent rusting.
 - c. Where splicing in required, an internal sleeve 21 inches long and the same diameter as the inside diameter as the pipe shall be used. This sleeve shall be held in place with no less than four (4) 3/8" diameter grade 5 bolts.
 - d. Mark the center of each batten with a 1" wide yellow stripe.
 - e. Paint the last 1'-0" of each end of each pipe batten yellow.

G. ACOUSTICAL ENHANCEMENT SYSTEM – BASIS OF DESIGN

- 1. Productions plans include drama, musical theater, dance, piano recitals, choral events, chamber music, jazz ensembles and fashion shows.
- 2. Given the variety of events in the space, and knowing they would benefit from different acoustic conditions, require the option of an acoustic enhancement system.
- 3. Yamaha has been designing and installing variable acoustic systems since the late 1980's. Yamaha's 4th generation of dedicated firmware / hardware / software designed specifically for these types of systems.
- 4. AFC Sub-System Elements
 - i. House Early Reflection, or ER, System Elements
 - ii. 4 x Cardioid microphones distributed in a line to provide coverage of the front of stage feeding one AFC engine.

- iii. ER mics mounted with capsules having line of sight as far upstage as reasonable.
- iv. ER mic height should be positioned as low as possible. Ideally, mics are within Dc of performers and the travel time to the microphones is as short as possible.
- v. ER system output will be distributed among loudspeakers distributed along the side and rear walls as well as around the proscenium opening.
- vi. The ER System output will also feed subwoofers. These subwoofers add warmth to the system, extending its bandwidth for full range enhancement.
- vii. The ER System can also matrix in signals from the stage mics and REV signals.
- viii. The sidewall ER system loudspeakers will also have movie surround signals merged with AFC signals for dual use of loudspeakers.
- 5. House Reverberation, or REV, System Elements
 - i. 4 x Omnidirectional microphones placed at or beyond Dc from the stage feeding one AFC engine.
 - ii. REV system output will be distributed among loudspeakers distributed near the ceiling, at or above the level of the clouds. REV signal may also be blended back to ER and Stage speakers.
- 6. Stage System Elements
 - i. 4 x Cardioid microphones distributed over stage feeding one AFC4 engine.
 - ii. Stage System Outputs will be distributed among loudspeakers suspended over the stage to replace the function of an orchestra shell roof.
- 1.7 SCOPE OF WORK
 - A. Provide all labor and material for the complete installation of the presentation systems as hereafter specified and shown.
 - B. PSC shall review the entire project package, including drawings and notes for other trades that may impact the Presentation Systems work, and make provision for such.
 - C. Equipment shall be new, current production, with original warranty. Demo, refurbished, used or B-stock equipment shall not be acceptable.
 - D. Quantities are listed for reference only. It is the PSC responsibility to verify quantities of all components.
 - E. All equipment must be installed in a neat and orderly fashion by competent workmen according to the manufacturer's instructions.
 - F. All system components shall be completely prewired with all field connections clearly labeled. All equipment shall be UL and or CE listed and shall comply with the National Electrical Code or equivalent authority and all applicable regulations of serving utilities and governmental bodies having jurisdiction.
 - G. Presentation equipment shall not be stored at the job site. Equipment shall be moved to the job site from a conditioned space only when scheduled for installation.

1.8 CONTRACTOR'S QUALIFICATIONS

- A. The PSC shall be a company that regularly engages in the furnishing and installation of systems similar in complexity to those required for this project and meet the following requirements.
 - 1. The primary business of the PSC shall be the sale and installation of professional performance related sound and video systems.
 - 2. No less than five years of experience with equipment and systems of the specified types.
 - 3. Proof of successful completion, with present key staff, of five projects of the type or magnitude of that specified herein.

- 4. Regular business under the same name and/or address for a period of five years.
- 5. Be a franchised dealer and service facility for the major products furnished.
- 6. Have technicians trained in the specific installation and maintenance of the equipment supplied.
- 7. Have suitable service facilities and test equipment for providing competent service for all types of professional dimming, sound and A/V equipment.
- 8. Maintain shop and office facilities within a 125-mile radius of the project site.
- 9. Employ a minimum of 1 full time engineer with InfoComm International Certified Technology Specialist Design (CTS-D) certification.
- 10. Employ a minimum of 1 full time installer with InfoComm International Certified Technology Specialist Installation (CTS-I) certification.
- 11. Employ a minimum of 1 full time programmer that is a Crestron Certified Programmer.
- 12. Employ a qualified "sound system and A/V production expert" with sufficient experience in production to providing training and assistance to the Owner during the initial system use period.
- 13. Certifications for permanent staff members:
 - a. BiAmp Audio senior level programmer
 - b. Dante Level 3 Master Certification
 - c. InfoComm International Certified Technology Specialist Design (CTS-D)
 - d. InfoComm International Certified Technology Specialist Installation (CTS-I)
 - e. Crestron Master Programmer
 - f. Crestron Digital Media Engineer
 - g. EASE training
 - h. Extron AV Associate certification
 - i. Extron Advanced School AV Technologies
- B. At the request of the Owner, the PSC shall demonstrate to the satisfaction of the Architect and Consultant that the PSC has:
 - 1. Adequate facilities and equipment to complete the work.
 - 2. Adequate staff with commensurate technical experience.
 - 3. Suitable financial status to meet the obligations of the work.
- C. Any other Contractor/Supplier who intends to bid this work as the prime Contractor/Supplier and does not meet the required qualifications shall employ the services of a single "Presentation Systems Contractor" who does meet the requirements noted above and is approved by the Owner. This "Presentation Systems Contractor" shall:
 - 1. Furnish the equipment.
 - 2. Shop fabricate the equipment racks and subassemblies.
 - 3. Make all audio, video and control connections to equipment racks, each piece of equipment, and connection panels.
 - 4. Continuously supervise the installation and connections of cable and equipment.
 - 5. Program the digital signal processor, video processing systems and control system.
- D. A subcontractor so employed as the "Presentation Systems Contractor" must be acceptable to the Architect and the Consultant and shall be identified on the Bid Proposal Form.

1.9 BID SUBMITTALS

- A. Along with the bid price, the PSC shall include the following:
 - 1. Proposed team member names, certifications and biographies for each. Include names and biographies of service and technical support personnel who will be responsible for this project after completion.
 - 2. Equipment list noting equipment quantities, manufacturer, brief description and specification number.
 - 3. Statement that the bid is based on specified products.

- 4. Address of staffed office within 125 miles of the job site.
- 5. Statement that the Contractor has an established toll-free hot-line and will provide 24hour/7-day-a-week phone support and on-site emergency service as necessary to correct technical failures.
- 6. List of five installations completed within the last three years, which are similar in size, type and scope to the work specified in this Section. Include project name, date of installation, name of contact and phone number.
- 7. Examples of typical design drawings (elevations, mounting details, millwork details, etc.)
- 8. A minimum of five touch panel menu templates from projects completed by the PSC.
- 9. Examples of training materials (PowerPoint slides, quick-start guide).
- 10. Target project schedule with timeline, skills and labor requirements.
- 11. Client reference letters.
- 12. Any proposed subcontractors, their qualifications, and scope of work.

1.10 PROJECT SUBMITTALS

- A. Upon award of the contract, PSC shall provide:
 - 1. Preliminary project schedule with timeline, skills and labor requirements.
 - 2. Name and qualifications of PSC personnel who shall be supervising the installation of the system. This person shall be a full-time employee of the PSC. The PSC shall submit a minimum of three (3) suitable bound sets, or electronic documents, of the following for review by the Architect and the Consultant. Refer to the General and Special Conditions for additional set(s) which may be required. All documents shall be submitted prior to ordering any materials.
 - 3. A complete list of all equipment and materials which are to be furnished. Accompanying the list shall be manufacturers' specification or cut sheets for all equipment.
 - 4. Shop drawings generated by the Contractor. The Contractor shall be provided with electronic copies of the floor plans, device layouts and room sections only for use in preparing their shop drawings. The Contractor is responsible for editing these sheets as required by these submittal requirements. The Contractor is required to generate all other sheets as required by these submittal requirements.
 - a. Detailed wiring diagrams showing interconnection of components and products, wiring and cabling diagrams depicting cable types and wire numbers, and device designators.
 - b. Plan view showing locations of all equipment. Plan(s) shall be properly dimensioned and all equipment labeled.
 - c. Wall elevations and room sections showing all installed equipment. Elevations and sections shall be properly dimensioned, and all equipment labeled.
 - d. Equipment rack layout details, including power, grounding, ventilation, and conduit/cable entry as applicable.
 - e. Loudspeaker system suspension schematic including hardware types and load capacity.
 - f. Complete drawings of custom-fabricated plates or panels. Drawings shall include dimensioned locations of components, component types, engraving information, plate material and color, and bill of material.
 - g. Power requirements, one-line riser diagrams, and installation circuit diagrams for electrical equipment. Show all required wire sizes and counts between all components.
 - h. Manufacturer's detailed shop drawings of all dimming, control and distribution equipment, and published literature for all equipment.

1.11 FINAL INSPECTION AND TESTING

A. In addition to supplying and installing the equipment as part of this contract the PSC is to aid the owner's consultant during on site observations, systems commission/performance verification, video system proof and owner training and production assistance.

- B. The process of testing the system may necessitate moving and adjusting certain components such as loudspeakers and video projectors. Movement and replacement as required is to be performed at no additional expense to the Owner.
- C. In the event further adjustment or Work becomes evident during testing, the Contractor shall continue his work until the system is acceptable at no additional expense to the Owner. If approval is delayed because of defective equipment, or failure of equipment or installation to meet the requirements of these specifications, the Contractor shall pay for additional time and expenses of the Consultant and Owner at the standard rate in effect at that time.
- 1.12 WARRANTY
 - A. All equipment is to be new and warranted free of faulty workmanship and damage.
 - B. The total system (parts and labor) is to be warranted free of defects for a period of one year from date of final acceptance.
 - C. The entire system (excluding lamps and fuses) shall be fully factory tested prior to shipment and shall be guaranteed against defects in material and workmanship for one year from date of acceptance by the Owner or (18) eighteen months from the date of shipment, whichever occurs first.
 - D. No equipment having a shorter warranty shall be considered and equipment purchased shall be covered by this warranty. Unspecified length of warranties shall not be acceptable.
 - E. Contractor shall provide for replacement of defective materials and repair of faulty workmanship within (48) forty-eight hours of notification by owner guaranteed at no cost to the owner during the warranty period.
 - F. Contractor shall provide emergency service and support 24 hours a day and 7 days a week. This service is intended as emergency response to failures that require immediate help from a qualified systems technician. The Contractor shall provide this service through an established toll-free line. This emergency service must include a return call from a qualified systems technician within 2 hours. This emergency service must also provide an on-site visit from a qualified systems technician within 12 hours of the initial phone call, should it be deemed necessary by both parties to resolve the service issue. This emergency service and support shall be made available throughout the warranty period at no additional charge to the owner.
 - G. Paint and exterior finishes, fuses and lamps are excluded from the above warranties except when damage or failure results from defective materials or workmanship covered by warranty.
 - H. The minimum warranty provisions specified above shall not diminish the terms of individual equipment manufacturer warranties.

1.13 INSTRUCTION OF OWNER PERSONNEL

A. PSC is to provide at least ten hours (2 each five-hour sessions) of training to person(s) selected by the Owner on operation and basic maintenance of all systems and equipment. In addition to training, a representative of the Contractor knowledgeable of the system installation and operation is to be present for the first special events selected by the Owner that all or any part of the sound and video systems is used. The training and event attendance is to take place during the 30-day period after system completion.

PART 2 - PRODUCTS

- 2.0 GENERAL
 - A. It is the intention of these specifications to provide a complete and properly operating system. The major items of equipment shall be furnished in the quantity indicated by the project drawings or in the quantity specified herein. In the event of a quantity discrepancy between the drawings and specifications for an item, the PSC shall provide the greater. PSC is responsible for

providing all accessories and miscellaneous equipment required to form a complete and operational system, including, but not limited to, power supplies, cabling, mounts, attachment hardware and software licenses.

- B. Provide only new products, and include the manufacturer's original factory warranty, product documentation and the latest version of any software required for configuration and/or operation.
- C. Where the specifications list several manufacturers for a particular major item of equipment, such as power amplifiers, the PSC shall supply all of that item of equipment from one manufacturer.
- D. Equivalent products can be proposed with appropriate documentation to show equivalent specifications. Items listed below in Schedule 1 are the models used in the Basis of Design.

Minimum Specifications for Equipment – Quantity per equipment list or drawings.

2.1 DIGITAL MIXER STAGE BOXES - BASIS OF DESIGN

- A. The stage box shall be a 2RU rack mountable device
- B. The stage box shall connect to mixer by way of a Primary and Secondary DANTE connections
- C. The stage box shall have (16) mono analog inputs
- D. Acceptable manufacturers

1. Yamaha RIO1608-D2 BASIS OF DESIGN

2.2 DIGITAL AUDIO MIXER-BASIS OF DESIGN

- A. The mixer shall be capable of mixing 64 mono and 8 stereo channels
- B. The mixer shall have the capability to be controlled from an iPad with the proper application loaded.
- C. The mixer shall have (32) local mono inputs and (16) outputs
- D. The mixer shall have (3) slots for optional modules
- E. The mixer shall have as standard connections, I/O a Primary and Secondary DANTE, Ethernet, Word Clock, and AES/EBU output
- F. Acceptable manufacturers
 - 1. Yamaha QL-5 BASIS OF DESIGN

2.3 NETWORK SWITCHES - DANTE- BASIS OF DESIGN

- A. The switch shall have 16 ports minimum
- B. The switch shall be an unmanaged switch
- C. The switch shall be at least 1Gb speed
- D. There shall be 8 ports of PoE
- E. Acceptable manufacturer/model, or better than:
 - 1. CISCO
 - 2. NetGear

2.4 NETWORK SWITCHES - DANTE- BASIS OF DESIGN

- A. The switch shall have 16 ports minimum
- B. The switch shall be an unmanaged switch
- C. The switch shall be at least 1Gb speed
- D. There shall be 8 ports of PoE
- E. Acceptable manufacturer/model, or better than:
 - 1. CISCO
 - 2. NetGear
 - 3. Yamaha

2.5 AUDIO SPEAKERS – MAIN FOH PERFORMANCE FULL RANGE (Qty per equipment list)

- A. Speakers to perform and mount in a line array coverage pattern
- B. Main loudspeakers are to be passive type

- C. Speakers shall be flown along with subwoofers
- D. Freq response of 59hz 20khz minimum
- E. Acceptable manufacturer
 - 1. NEXO- BASIS OF DESIGN
 - 2. JBL
 - 3. L Acoustics
- 2.6 AUDIO SPEAKERS MAIN FOH SUBWOOFERS (Qty per equipment list)
 - A. Subwoofers to be flown next to full range speakers behind first reflector
 - B. Subwoofer cabinets to be a single 18" driver
 - C. Cabinet shall have necessary hardware necessary for flying speaker
 - D. Freq response of 35hz 120hz
 - E. Acceptable Manufacturer
 - 1. NEXO- BASIS OF DESIGN
 - 2. JBL
 - 3. L Acoustics
- 2.7 AUDIO SPEAKERS STAGE WEDGE MONITORS (Qty per equipment list)
 - A. Speakers to be passive 2-way type
 - B. Freq response 55hz-18khz or better
 - C. The speaker shall have a 12" low freq. driver
 - D. The speaker shall be rated at 550W continuous
 - E. Provide NL4 to NL4 cables, per equipment list
 - F. Acceptable manufacturers
 - 1. Yamaha- BASIS OF DESIGN
 - 2. JBL
 - 3. L Acoustics

2.8 AUDIO SPEAKERS – SURFACE MOUNT

- A. Mount with manufacture's bracket at locations on drawings
- B. Speakers to be 70V with easy access to wattage tap selector switch
- C. Speakers to have nominal pattern coverage of 110°
- D. Speaker shall have continuous program power rating of 75W
- E. Acceptable manufacturers
 - 1. Community
 - 2. Yamaha- BASIS OF DESIGN
 - 3. JBL

2.9 AUDIO POWER AMPLIFIER - HOUSE

- A. Amplifiers shall have either a barrier strip or XLR connector for their balanced input connections.
- B. Amplifier to have 4 independent channels or bridgeable 2x2
 - C. Output wattage to be 900W per channel into 4Ω
 - D. Shall have no greater than 1% THD at 1Khz at maximum power
 - E. Provide adequate electrical service for max output
 - F. Acceptable manufacturers
 - 1. NEXO Basis of Design
 - 2. Per main loudspeaker system requirements
- 2.10 AUDIO POWER AMPLIFIER MONITORS
 - A. Amplifier to have 4 separate channels, with built-in DSP
 - B. Amplifiers shall have a 3-pin phoenix strip for each of the (4) balanced input connections.
 - C. Amplifier to have phoenix strip connections for outputs

- D. Output peak wattage to be 1400W per channel into 4Ω
- E. Provide adequate electrical service for max output
- F. Acceptable manufacturers
- 1. Yamaha
- 2. QSC
- 3. Crown

2.11 AUDIO AMPLIFIER - PAGING / BACKGROUND

- A. Amplifier shall have balanced inputs on barrier strip.
- B. Amplifier to have 8 independent 70V output channels
- C. Output wattage of each channel to be 500W minimum.
 - D. Acceptable manufacturer
 - 1. Yamaha- BASIS OF DESIGN
 - 2. QSC
 - 3. Crown

2.12 AUDIO DIGITAL SIGNAL PROCESSOR (DSP)

- A. DSP's shall meet the following minimum criteria
- 1. Ability to be networked to allow for expansion and control
- 2. Shall be able to configure with the necessary input and output quantity as required per drawings.
- 3. Supports standard DSP functions such as but not limited to, auto-mixing, parametric EQ, compressing, Hi-Lo band pass, muting, routing, etc.
- B. Acceptable manufacturer
- 1. Yamaha MX– BASIS OF DESIGN
- 2. BiAmp TesiraServer
- 3. BSS London
- 4. QSC Core

2.13 AUDIO MICROPHONES - WIRELESS PERFORMANCE

- A. The wireless microphones shall have the added capability of 64Mhz bandwidth of digital tuning
- B. There shall be 24-bit digital audio
- C. Over 120db of dynamic range
- D. Shall be easy pairing with IR scan and sync
- E. Provide the necessary antenna / power distribution for all receivers
- F. (Qty T.B.D.) systems; price each system with allowance for a head worn microphone for theater.
- G. Acceptable manufacturer
 - 1. Shure
 - 2. Sennheiser
 - 3. AKG

2.14 AUDIO MICROPHONES – WIRED PERFORMANCE (Qty per equipment list)

- A. Provide handheld wired vocal microphones such as Shure SM58 or SM87
- B. Provide instrument microphones such as Shure SM57 or SM81
- C. Provide drum microphone kit such as a Shure DMK57-52
- D. Provide piano mic such as a BETA 91A or SM81
- E. Provide Choir microphones such as Audix Microboom 8450
- F. Acceptable manufacturers
 - 1. Shure
 - 2. Audix
 - 3. AKG

2.15 AUDIO MEDIA PLAYBACK

- A. The audio player shall have a CD player
- B. The player shall have a Bluetooth receiver to allow playback through the system from user's phones, iPad, etc.
 - C. The player shall have an 1/8" Aux input jack
 - D. Audio player shall have stereo unbalanced analog outputs
 - E. The player shall be remote control via Infrared control
 - F. Acceptable manufacturers
 - 1. Tascam
 - 2. Denon
 - 3. Yamaha

2.16 PRODUCTION INTERCOM

- A. The production intercom system shall be the analog party line solution
- B. The system master station shall be a 2-channel system
- C. The master station shall be able to power up to 55 single channel beltpacks or 10 speaker stations or 12 headset stations distributed over both channels
 - D. The master station shall accept a line level program input
 - E. See associated schematic drawing to identify the type of user stations and locations
 - F. Provide lightweight single muff headsets with all beltpacks.
 - G. Acceptable manufacturer
 - 1. Clearcom-BASIS OF DESIGN

2.17 ASSISTIVE LISTENING SYSTEM

- A. ALS transmitter to be an RF based system
- B. The number of channels to be 17 wide band, 40 narrow band
- C. Provide appropriate number of receivers in accordance to ADA specification.
- D. The receivers shall be equipped to use the loop/lanyard for t-coil hearing aid users or the standard 3.5mm standard earphone output.
 - E. Acceptable manufacturer1. Listen Technologies– BASIS OF DESIGN
 - 2. Williams

2.18 VIDEO PROJECTOR - MAIN PRESENTATION

- A. The main presentation projector shall meet or exceed the following specifications.
 - 1. Native resolution: WUXGA, 1920x1200 (x3) LCD TFT Active Matrix
 - 2. Solid-state laser-diode light source
 - 3. Brightness: 12000 Lumens
 - 4. Contrast Ratio: 2,500,000:1
 - 5. Horiz and Vert Keystone correction
- B. Acceptable manufacturers
 - 1. Epson-BASIS OF DESIGN
 - 2. Christie
 - 3. Digital Projection

2.19 PROJECTION SCREEN - AUDITORIUM

- A. The screens shall meet the following specifications.
 - 1. The aspect ratio is to be 16:10
 - 2. Electric screen with 24" black drop and LV control interface
 - 3. The image size shall be 180"H x 288"W
 - 4. Screen material to be Dual Vision for rear screen Rear projector mounted on upstage wall

- B. Acceptable manufacturers
 - 1. Dalite- BASIS OF DESIGN
 - 2. Draper

2.20 AUDITORIUM VIDEO PRESENTATION SWITCHER

- A. Video switching and routing must be able to transmit and receive a 4K signal up to 300'
- B. This signal must pass control protocol and audio. Audio to be able to be broken away separately from video path
- C. The switcher to be modular and configurable depending on the size and types of formats
- D. Switcher communications to support ethernet, USB, DigitalMedia, HDBaseT, HDMi
- E. Acceptable manufacturer
 - 1. Crestron-BASIS OF DESIGN
 - 2. AMX
 - 3. Extron

2.21 CAMERA – PTZ USB

- A. The camera shall have a remote controllable 12X zoom lens
- B. The camera shall have a 73° field of view
- C. The output resolution shall be 1080p
- D. The camera shall have simultaneous uncompressed USB 3.0, HDMi, and IP (H.264) streaming.
- E. Remote management by IR, Web interface, Telnet, and RS232
- F. Power to be with 12VDC power supply or PoE+
- G. Acceptable manufacturer / model
 - 1. Vaddio RoboSHOT System– BASIS OF DESIGN

2.22 BLU-RAY PLAYER

- A. Shall play back Blu-ray, DVD, and CD media
- B. Playback WAV, MP3, WMA, and other audio formats
- C. RS-232C serial control
- D. Infrared remote control included
- E. Acceptable manufacturer
 - 1. Tascam
 - 2. Dennon
 - 3. Sony

2.23 RIGGING

В.

- A. Refer to drawings for line set mounting locations.
 - (10) 1000lb. fixed speed hoists (electrics)
 - 1. Acceptable manufactures
 - a. SRS- Custom line shaft stage rigging system BASIS OF DESIGN
 - b. ETC
 - c. J R Clancy
- C. Controller for hoists / rigging
 - 1. Acceptable
 - a. Per Manufacture

2.24 CONTROL SYSTEM – PROCESSORS

- A. The control processor shall include the necessary power supply
- B. The processor shall have a Ethernet LAN connection as well as an Ethernet Control Subnet connection
- C. The control processor shall have these available I/O options
 - 1. (8) Relay contact closures
 - 2. (8) Digital I/O connections

- 3. (8) IR / Serial outputs
- 4. (1) RS-232/422 bi-directional output
- 5. (2) RS-232 Bi-directional
- 6. (1) USB connection
- 7. (1) Cresnet connection
- D. Acceptable manufacturer
 - 1. Crestron-BASIS OF DESIGN

2.25 WIRED TOUCH PANELS

- A. Refer to drawings to verify the location, size, and type of touch panel.
- B. Display type shall be a TFT active matrix color LCD, 5-point multi-touch
- C. Provide necessary mounting hardware/box for wall mounted touch panels.
- D. Provide a PoE connection for power for wall mounted touch panels
- E. Acceptable manufacturer
 - 1. Crestron-BASIS OF DESIGN

2.26 PERFORMANCE LIGHTING CONSOLE

- A. The lighting console shall have internal solid-state memory
- B. It shall have a 15.6" primary touch screen and a 7" secondary touch screen for control
- C. 40 precision playback faders in 3 pageable groups
- D. 20 programmable macro executor buttons
- E. Includes 4-port managed Gigabit network switch
- F. Acceptable manufacture
 - 1. ETC High End Systems

2.27 LIGHTING WALL BUTTON PANELS

- A. Provide 1-gang 5-button panels at designated locations in the auditorium for lighting control
- B. Provide 1-gang 10 button panels at designated locations in the auditorium for lighting control
- C. Acceptable manufacturer
 - 1. ETC Heritage– BASIS OF DESIGN

2.28 LIGHTING TOUCH SCREEN CONTROL

- A. Provide a 7" Link Connected touch-screen station
- B. Acceptable manufacturer
 - 1. ETC <u>EchoTouch</u>– BASIS OF DESIGN
- 2.29 LIGHTING DIMMER RACK
 - A. Existing dimming rack to control auditorium house and theatrical lights.
 - B. Factory upgrade retrofit kit to make existing dimmer function as new.
 - C. Include necessary network and 0-10V control gateways for stage and house lighting.
 - D. <u>Dimmer rack to be populated with an assortment of dual 20A dimming modules and dual</u> 20A relay modules.
 - E. Emergency transfer switches to be provided.
 - F. Acceptable manufacturer
 - 1. ETC- BASIS OF DESIGN

2.30 PERFORMANCE LIGHTING – LED PAR FIXTURES

- A. The performance lighting par fixtures shall use LED technology
- B. Light Source: 40 LUXEON Z LEDs (quad color RGBL)
- C. The fixtures shall have 50,000 Hr. life expectancy
- D. Max Lumens 3,039
- E. Include three lens per fixture
- F. Include one 10' PowerCON Jumper per fixture

G. Quantity: per equipment list.

H. Acceptable manufacturer

- 1. Chauvet
- 2. ETC

2.31 PERFORMANCE LIGHTING - LED ELLIPSOIDAL FIXTURES

- A. The performance lighting ellipsoidal fixtures shall use LED technology
- B. Light Source: 60 LUXEON Z LEDs (quad color RGBL)
- C. The fixtures shall have 50,000 Hr. life expectancy
- D. Max Lumens 6,932
- E. Supply assortment of 19°, 26°, and 36° lens tubes as needed
- F. Include one 10' PowerCON Jumper per fixture
- G. Quantity: per equipment list.
- H. Acceptable manufcturer
 - 1. Chauvet
 - 2. ETC

2.32 PERFORMANCE LIGHTING – CYC FIXTURES

- A. The performance lighting cyc fixtures shall use LED technology
- B. Light Source: 40 LUXEON C LEDs (Red, Green, Blue, Indigo & Green))
- C. Variable effects engine; strobe, strobe on top, strobe random
- D. Max Lumen 4,117
- E. The fixtures shall have 50,000 Hr. life expectancy
- F. Include one 10' PowerCON Jumper per fixture
- G. Quantity: per equipment list.
- H. Acceptable manufacturer
 - 1. Chroma-Q
 - 2. ETC

2.33 PERFORMANCE LIGHTING – SPOTLIGHTS

- A. The spotlight shall have a throw of 30'-150'
- B. The beam angle shall be from 8° to 22°
- C. Input voltages 100V, 120V, 230V, and 250V
- D. Include framing shutter option
- E. Quantity: 2
- F. Acceptable Manufacturer
 - 1. Canto USA

2.34 LIGHTING FLOOR BOXES

- A. Acceptable manufacturer
 - 1. ETC
 - 2. SSRC

2.35 STAGE CURTAINS

- A. Shall be classified as Class A compliant for areas of assembly
- B. Stage Curtains consist of:
 - 1. Front Grand Drape (2) Size Per drawings and equipment list
 - 2. Grand Valance (1) Size Size Per drawings and equipment list
 - 3. Pleated Legs (8) Size Per drawings and equipment lis
 - 4. Mid Stage traveler (2) Size Per drawings and equipment list
 - 5. Cyclorama (1) Size Per drawings and equipment list
 - 6. Borders (3) Size Per drawings and equipment list

- C. Curtain fabric to be <u>25oz</u>. Charisma fabric
- D. Curtains shall be 50% fullness
- E. 5" Bottom hems with lead weight tape encased in separate muslin for added durability
- F. (3) 70' manual curtain tracks.
- G. Acceptable manufacturers
 - 1. Charisma (Fabric)
 - 2. Stage Decorations
 - 3. Greenville Stage (Curtains)

2.36 AV FLOOR BOXES – UPSTAGE

- A. Provide large floor boxes as indicated on drawings.
- B. Acceptable manufacture
 - 1. Ace Backstage
 - 2. FSR

2.37 AV FLOOR BOXES – DOWN STAGE CENTER

- A. Provide floor boxes as indicated on drawings.
- B. Acceptable manufacture
 - 1. Ace Backstage
 - 2. FSR

2.38 MISC SUPPORT EQUIPMENT

- A. Equipment Racks
 - 1. Refer to drawings for location and size of equipment racks.
 - 2. Provide rack panel blanks and vents to best fill in unused rack spaces.
 - 3. Freestanding and Wall racks shall provide standard 19"W space to mount equipment.
 - 4. The number of rack units shall be enough to house all equipment based on the system design. Population of rack to be 75%-80% with the remainder open for future growth.
 - 5. Where rear access is not possible to rack, provide a sliding and swiveling rack instead.
 - a. Acceptable Manufacturer
 - 1) Middle Atlantic
 - 2) Gator

2.39 ORCHESTRA SHELL (REVISE ADDENDUM 1 SEE APPENDIX 1.0)

- 1. Portable Orchestra Shell Towers:
 - iii. <u>* Standard Wenger Construction</u>
 - iv. * Price includes 2022 delivery and installation.
- 2. Legacy Towers w/Painted Finish:
- 3. Consists of:
 - v. (12) LEGACY TOWERS,
 - vi. 6' Wide, 13'6"' Tall
 - vii. Face Finish Sherwin Williams Kem Aqua
 - viii. Paint (Class 'A')
- 7. Acoustic Ceiling Clouds with paint finish
 - i. Single row of 8'x8' curved reflective ceiling diffusers.

2.40 SCHEDULE OF BASIS OF DESIGN EQUIPMENT

This is a list of the major items used in the design. The integrator is responsible for all ancillary and accessory items needed to integrate a fully operational system as intended.

2.40.1	Audio Mixing Syste	<u>ms</u>	_	_
<u>Item</u>	Make	Model	Description	<u>Qty</u>
<u>AM1</u>	<u>Yamaha</u>	Rio-1608D2	16 input x 8 output mic/line interface	<u>3</u>
			with Dante	
<u>AM2</u>	<u>Yamaha</u>	<u>QL-5</u>	64 input x 16 output digital mixing	<u>1</u>
A 84.2	Vemeke		Console with Dante	•
	<u>Yamana</u>	LAIL		<u> </u>
	<u>Yamana</u>	-	Cover for QL-5	1
<u>AM5</u>	Gator	-	Portable rack case for RIO-1608D	1
<u>AM6</u>	lascam	<u>CD-2001L</u>	Professional Single CD Player iPod	<u>1</u>
			Unbalanced BCA Audio Outputs MP3	
			& WAV Playback 2RU	
2.40.2	Audio Drive System	IS		
Item	Make	Model	- Description	Qty
AD1	Yamaha	MRX7-D	Digital signal processor with Dante	1
AD2	Yamaha	XVM4280D	4 channel x 280W power amp (stage	1
			monitors)	-
AD3	<u>Yamaha</u>	XVM4280D	4 channel x 280W power amp (back-	1
			stage, control booth)	
<u>AD4</u>	<u>Nexo</u>	NXAMP4X2MK	<u>4 channelx2000W power amp (Main</u>	<u>2</u>
		2	Loudspeakers)	
<u>AD5</u>	<u>Nexo</u>	NXDT104MK2	Nexo, Dante Card for NXAMP - MK 2	<u>2</u>
<u>AD6</u>	<u>Cisco</u>	Cisco SG300-	Network switch for Dante #1,#2,#3-	<u>3</u>
		<u>10PP</u>	Primary in ER2.1, ER2.2, ER3.1	
<u>AD7</u>	<u>Netgear</u>	<u>WNDR3400-</u> <u>11NAS</u>	Wireless access point for AV systems	1
AD8	Listen Technol-	LS-54-072	Listen iDSP Prime Level II Stationary	<u>1</u>
	<u>ogies</u>		RF System (72 MHz) (LT-800/LR-4200	
			included)	
<u>AD9</u>	ListenTech	<u>LR-4200-072</u>	ALS receivers	<u>20</u>
<u>AD10</u>	<u>ListenTech</u>	<u>LA-430</u>	ALS Headphone/t-coil lanyard	<u>5</u>
<u>AD11</u>	ListenTech	<u>LA-401</u>	Universal ear speaker	<u>20</u>
-	_	_	-	
2.40.3 Audio Loudspeaker Systems			-	
<u>ltem</u>	<u>Make</u>	Model	Description	<u>Qty</u>
<u>AS1</u>	<u>Yamaha</u>	<u>VXS5W</u>	(Pair) 5" 2-way surface mount loud-	<u>2 pair</u>
			speaker with 70V Transformer (back- stage)	
AS2	<u>Yamaha</u>	VXS8B	(Pair) 8" 2-way surface mount loud-	<u>1 pair</u>
			speaker with 80hm (control booth)	
<u>AS3</u>	Lowell	<u>25LVX-DW</u>	25W wall mount volume control	<u>4</u>
	 		(backstage)	
<u>AS4</u>	Lowell	<u>150LVCS-DSB</u>	150W wall mount volume control	<u>1</u>

			(control booth)	
AS5	Yamaha	CBR-12	12" 2-Way stage monitor loudspeaker	<u>6</u>
<u>AS6</u>	Rapco	H14-25N2N2	25' NL-2 stage monitor loudspeaker cable	<u>6</u>
<u>AS7</u>	<u>Rapco</u>	H14-10N2N2	10' NL-2 stage monitor loudspeaker cable	<u>6</u>
AS8	Neutrix	NL4-MMX	NL-2/4 coupler	8
<u>AS9</u>	Nexo	<u>GEOM1012-I</u>	Nexo Geo M, Geo M1012 Install Cabi- net	8
<u>AS10</u>	<u>Nexo</u>	<u>GEOM1025-I</u>	Nexo Geo M, Geo M1025 Install Cabi- net	<u>4</u>
<u>AS11</u>	<u>Nexo</u>	<u>GMT-FLGM10</u>	Nexo Acc, Pair of 120 Degree Disper- sion Flanges Geo M10	<u>4</u>
<u>AS12</u>	<u>Nexo</u>	<u>GMT-</u> LBUMPM10	Nexo Acc, Light Bumper for Geo M10	<u>2</u>
<u>AS13</u>	<u>P.S.C.</u>	as required	Rigging accessories for Geo M10 loudspeaker arrays	<u>TBD</u>
<u>AS14</u>	<u>Nexo</u>	<u>LS18</u>	Nexo PS, 18" Subwoofer Sub Bass for PS15/GeoS12 Flyable	<u>4</u>
2.40.4	Audio Wireless Mic	rophone Systems	<u>S</u>	_
Item	Make	Model	Description	Qty
AW1	Shure	QLXD124/85	24-bit Digital Combo System,	1
			w/QLXD4 Single Receiver, QLXD1 Bodypack, QLXD2 Handheld SM58	_
			Mic Transmitter, and WL185 Cardioid Lavalier Mic, J50 Band (572-636 MHz)	
<u>AW2</u>	<u>Shure</u>	<u>ULXD1-G50</u>	Digital Wireless Bodypack Transmit- ter w/Mini 4-Pin Connector, G50 Band (470-534 MHz)	<u>16</u>
<u>AW3</u>	<u>Galaxy</u>	<u>ESM8-OB*-</u> <u>4SHU</u>	headworn wireless microphone – *provide 16 beige (G) and 16 black (K).	<u>32</u>
<u>AW4</u>	<u>Shure</u>	ULXD4Q-G50	<u>ULX-D Quad Digital Wireless Receiv-</u> er, (470-534MHz) Includes Rackmount, 1/2 Wave Antenna, 1RU	<u>4</u>
<u>AW5</u>	<u>Shure</u>	<u>Shure</u> ULXD2/BETA8 7A	Handheld transmitter	<u>8</u>
<u>AW6</u>	<u>Shure</u>	<u>UA844+SWB</u>	Wideband UHF (470-952 MHz) Five- Way Active Antenna Splitter and Power Distribution System, external power supply. For QLX-D®, ULX®, ULX-D®, SLX®, and BLX® (BLX4R only) receivers. 1RU	2
<u>AW7</u>	<u>Shure</u>	<u>UA834WB</u>	In-Line Antenna Amplifier for Remote- Mounting 470-902 MHz	<u>2</u>
<u>AW8</u>	<u>Shure</u>	<u>UA864US</u>	Wall-Mounted Wideband Antenna (470-698 MHz)	<u>2</u>
<u>AW9</u>	<u>Shure</u>	<u>Shure</u> MX150b/C-tgg	Cardioid Lavalier Mic	<u>16</u>
2.40.5	Audio Microphone		_	
ltem	Make	Model	Description	Qty

<u>AM1</u>	<u>Shure</u>	<u>SM58-LC</u>	Dynamic Handheld Cardioid Vocal Microphone (Less Cable)	<u>8</u>
ΔM2	Shure	SM57-LC	Dynamic Handheld Cardioid Vocal	4
<u>/</u>			Microphone. (Less Cable)	-
AM3	Shure	DMK57-52	Drum kit	1
AM4	Shure	SM81	Condenser instrument mic	2
	Shure	Beta 87	Handheld condenser mic	6
	Audix		50 inch (1270mm) carbon fiber boom	<u> </u>
AIVIO	Audix		and clutch assembly only - no mic no	4
		<u> </u>	cable	
AM7	Rapco Horizon	NBM5-10	10' Concert Series Microphone Cable -	8
<u></u>			Neutrik Connectors	<u> </u>
AM8	Rapco Horizon	NBM5-25	25' Concert Series Microphone Cable -	20
			Neutrik Connectors	
AM9	Rapco Horizon	M5-50	Professional M5 Series Shielded Mi-	12
			crophone Cable, w/ A3 (F/M) Con-	
			nectors, 50' Long	
AM10	Rapco	SP4-25	Concert Series Neutrik NL4FC to	8
			NL4FC Speaker Cable, w/Speakon	
			Connectors, 25' Long	
<u>AM11</u>	<u>Rapco</u>	<u>SP4-50</u>	Concert Series Neutrik NL4FC to	<u>2</u>
			NL4FC Speaker Cable, w/Speakon	
			Connectors, 50' Long	-
<u>AM12</u>	ProCo Sound	<u>DB1</u>	Passive Direct Box, 1/4 in. Phone In-	<u>1</u>
			put w/Loop Thru, Balance	
<u>AM13</u>	Atlas Sound	<u>MS-10CE</u>	Mic Floor Stand Ebony Finish (Must	<u>26</u>
			Buy 4)	
<u>AM14</u>	Atlas Sound	PB21XEB	Adjustable Length: 25 25" 20 5" 5h	26
			Adjustable Length: 25.25 -36.5 , ED-	
2 40 6	Equipmont Packs a	nd Wall Platos		
<u>2.40.0</u>	Middle Atlantic		40 Space (70" Backing Height) Swing	<u>-</u>
	Milule Allantic	<u>3R-40-20</u>	ing Wall Pack 26" Usoable Dopth	AS DEO
4.00	Middle Atlantic		Ing Wall Rack, 20 Oseable Depth	
<u>ARZ</u>	Middle Atlantic	<u>VFD-40</u>	Universal Front Door for 40-Space	<u>A5</u>
4.02	Middle Atlentic			REQ
<u>AR3</u>	Middle Atlantic	Lace-P	6PC,455P CABLE LACE STRIP	AS REQ
AR4	Panduit	PADC2BL6	PVC Wiring Duct Cover (2.25"W)	AS
			Black, 6' Length	<u>REQ</u>
<u>AR5</u>	Middle Atlantic	PADG2X3BL6	Slot Wiring Duct (2.25"W x 3.12"H)	AS
			Black, 6' Length	<u>REQ</u>
<u>AR6</u>	Middle Atlantic	MAP-HP	Rack Mount Phillips Screws	AS
			<u>w/Washers (100 Pcs.)</u>	REQ
<u>AR7</u>	Middle Atlantic	<u>EB-1 LOGO</u>	1-Space Econo Flanged Blank Panel	<u>AS</u>
			SFPS Logo	REQ
<u>AR8</u>	Middle Atlantic	<u>EB-1</u>	1-Space Econo Flanged Blank Panel	<u>AS</u>
			Smooth Finish.	REQ
<u>AR9</u>	<u>P.S.C.</u>	Misc .5	Necessary Cables, Connectors, Ac-	AS
			<u>cessories</u>	REQ
<u>AR10</u>	MIDDIE Atlantic	<u>BR1</u>	10 Brush Grommet Panel	AS
	Middle Atlantia		Kaubaand Oliding Obalf with Oable	<u>KEQ</u>
<u>AR11</u>	INIGGIE ATIANTIC	<u>ND-99</u>	Reyboard Sliding Shelf with Cable	<u>A2</u>

			Management, 1RU	REQ
<u>AR12</u>	Middle Atlantic	<u>D3</u>	3-Space (5.25 in.) Rack Drawer, Black	AS
			Anodized Finish	<u>REQ</u>
<u>AR13</u>	Middle Atlantic	<u>D2</u>	2-Space (3 in.) Rack Drawer, Black	<u>AS</u>
			Anodized Finish	REQ
<u>AR14</u>	Middle Atlantic	<u>EB-4</u>	4-Space Econo Flanged Blank Panel	AS
			Smooth Finish.	REQ
<u>AR15</u>	<u>P.S.C.</u>	PLACEHOLDE B. Comorio	LI-GN-PNL Rack Light	<u>4</u>
		<u>R - Generic</u>		
<u>AR16</u>	<u>P.S.C.</u>	PLACEHOLDE	Panelcrafters Custom Rack Panel for	<u>2</u>
		<u>R - Generic</u>	Touch Panel & Lighting Panel	
<u>AR17</u>	<u>P.S.C.</u>	PLACEHOLDE	Panelcrafters Custom Paging Station	<u>2</u>
		<u>R - Generic</u>	Rack Panel	
<u>AR18</u>	Lowell Mfg.	RPC-4-CD	15A Remote Power Control Rack-	<u>4</u>
			Mount w/4 Duplex RU2 Panel, 6Ft.	
1.540			Cord & Plug	10
<u>AR19</u>	Lowell Mfg.	<u>RPC-1-20A-CD</u>	20 Amp (1-Duplex) Remote Controlled	<u>18</u>
			Power Relay with 6 Ft. Power Cord	
<u>AR20</u>	<u>P.S.C.</u>	PLACEHOLDE	Gator Cases G-Tour-14-CAST	<u>1</u>
		<u>R - Generic</u>		
<u>AR21</u>	Middle Atlantic	<u>D2</u>	2-Space (3 in.) Rack Drawer, Black	<u>1</u>
4 8 9 9			Anodized Finish	
<u>AR22</u>	Middle Atlantic	EB-1 LOGO	1-Space Econo Flanged Blank Panel	<u>1</u>
4022		Mice 25	SFPS Logo	4
<u>AR23</u>	<u>P.3.C.</u>	<u>IVIISC .25</u>	Necessary Fastening Hardware, AC-	1
AR24	Panduit		PVC Wiring Duct Cover (2 25"W)	1
71124	<u>r undurt</u>	TADOLDEO	Black. 6' Length	<u> </u>
AR25	Panduit	PADG2X3BL6	Slot Wiring Duct (2.25"W x 3.12"H)	1
			Black, 6' Length	_
AR26	Middle Atlantic	BRK6	6-Space (10.5in.) KD Laminated	<u>1</u>
			Equipment Rack, 18In.Depth, Black	
			<u>Finish</u>	
<u>AR27</u>	Middle Atlantic	<u>EB-1 LOGO</u>	1-Space Econo Flanged Blank Panel	<u>1</u>
			SFPS Logo	
<u>AR28</u>	Middle Atlantic	<u>D2</u>	2-Space (3 in.) Rack Drawer, Black	<u>1</u>
A D 20		Mice 25	Anodized Finish	4
<u>AR29</u>	<u>P.3.C.</u>	<u>IVIISC .25</u>	Necessary Fastening Hardware, AC-	1
AR30	Panduit	PADC2BL6	PVC Wiring Duct Cover (2 25"W)	1
<u>AI100</u>	<u>r undurt</u>	TADOLDEO	Black, 6' Length	<u> </u>
AR31	Panduit	PADG2X3BL6	Slot Wiring Duct (2.25"W x 3.12"H)	1
			Black, 6' Length	-
AR32	Hosa Technolo-	XLR-805	8-channel XLR3F to XLR3M balanced	1
	gy		audio snake, 5 meters in length, fan to	_
			<u>fan.</u>	
<u>AR33</u>	<u>Hosa Technolo-</u>	<u>XLR-805</u>	8-channel XLR3F to XLR3M balanced	<u>2</u>
	дХ		audio snake, 5 meters in length, fan to	
			Tan.	-
<u>AR34</u>	<u>P.S.C.</u>	<u>PP1.1</u>	Rack space custom panel – panels	<u>1</u>
AD25	BSC	DD1 2	and connectors per EP34.1	4
AK92	<u>F.J.U.</u>	<u> </u>	Nach space custom panel - panels	<u>_</u>
			and connectors per EPS4.1	
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AR36	<u>P.S.C.</u>	PP1.3	Rack space custom panel – panels	<u>1</u>
			and connectors per EPS4.1	
<u>AR37</u>	<u>P.S.C.</u>	<u>PP2.1</u>	<u>8"x8" custom panel – connectors per</u>	<u>1</u>
			EPS 4.1 Lower Booth	
<u>AR38</u>	<u>P.S.C.</u>	<u>PP2.2</u>	<u>8"x8" custom panel – connectors per</u>	<u>1</u>
			EPS 4.1 Under Balc.	4
<u>AR40</u>	<u>P.S.C.</u>	<u>PP2.3</u>	8"X8" custom panel – connectors per	<u>1</u>
	DSC	CAM 1 1	2G custom plate for camora connec	1
<u>AN40</u>	<u>F.3.C.</u>		tion	<u>-</u>
AR41	P.S.C.	D1.x	1G custom plate for lighting network	As rea
AR42	PSC		1G custom plate for production inter-	As req
<u>/</u>	<u></u>		com	<u>/.0104</u>
AR43	P.S.C.	ST1.x	2G custom plate for loudspeaker con-	As rea
			nection	
AR44	P.S.C.	<u>ST2.x</u>	1G custom plate for loudspeaker con-	As req
			nection	
<u>2.40.7</u>	Audio Equipment P	roduction Interco	<u>m</u>	_
<u>ltem</u>	<u>Make</u>	Model	Description	Qty
lcom	P.S.C.	PLACEHOLDE	Panelcrafters 1-Gang Plate w/ 2 XLR	<u>5</u>
<u>1</u>		<u>R - Generic</u>	Intercom Connectors	
lcom	Clear-Com	<u>MS-702</u>	Encore 2 Channel Headset/Speaker	<u>1</u>
2			Main Station. Rack Mount 1RU.	
Icom	Clear-Com	_	Clear-Com GM-9 Gooseneck Mic	1
3		-		_
<u>lcom</u>	<u>Clear-Com</u>	-	Clear-Com RS-702 Dual Listen Belt-	<u>11</u>
<u>4</u>			pack	
lcom	<u>Clear-Com</u>	-	Clear-Com CC-40 Economy Single Ear	<u>11</u>
5			Headset	44
<u>icom</u>	<u>Clear-Com</u>	-	Intercom Wall Plate	<u>11</u>
2 40 8	Audio Acoustic Sys	tom		
<u>2.40.0</u>	Maka	Modol	- Description	
	Audix		<u>Description</u> Succeeded cardicid microphone	<u>uty</u> o
<u>AS1</u>	Audix	<u>SCX-1-C</u>	Suspended cardioid microphone	<u>0</u>
<u>A52</u>	Audix	<u>507-1-0</u>	Suspended omni microphone	4
<u>AS3</u>	<u>Yamana</u>	<u>AFC402-E</u>	AFC ENHANCE Processor for projects	<u>1</u>
			TENTATIVE PRICING DENDING	
AS4	Yamaha	TIO1608	16 input x 8 output mic/line interface	1
<u>/</u>	<u>-ramana</u>	1101000	with Dante	<u> </u>
AS5	Yamaha	SWR2310-	Dante Switch ER1.1 L2 Intelligent	1
		28GT	Network Switch (28 ports) with 10G	_
			uplink	
<u>AS6</u>	<u>Yamaha</u>	<u>XMV8280D</u>	8-Channel Amplifier	<u>12</u>
AS7	Yamaha	VXS-8W	Surface mount loudspeaker (Prosce-	3 pair
			nium) (Pair) 8" 2-Way Surface Mount	
			Speakers, White Version (Pair) 8" 2-	
			Way Surface Mount Speakers, White	
			version Custom paint per architect	
1	1	1		

<u>AS8</u>	<u>Yamaha</u>	<u>VXS-8W</u>	Surface mount loudspeaker (Upper side walls) (Pair) 8" 2-Way Surface Mount Speakers, White Version (Pair) 8" 2-Way Surface Mount Speakers, White Version Custom paint per archi- tect color selection	<u>6 pair</u>
<u>AS9</u>	Yamaha	<u>VXS-8W</u>	Surface mount over balcony (Pair) 8" 2-Way Surface Mount Speakers, White Version (Pair) 8" 2-Way Surface Mount Speakers, White Version Custom paint per architect color selection	<u>4 pair</u>
<u>AS10</u>	<u>Yamaha</u>	<u>VXS-5W</u>	Surface mount over balcony (Pair) 5" 2-Way Surface Mount Speakers, White Version Custom paint per architect color selection	<u>5 pair</u>
<u>AS11</u>	<u>Yamaha</u>	<u>VXS-5W</u>	Surface mount under balcony (Pair) 5" 2-Way Surface Mount Speakers, White Version custom paint per architect color selection	<u>14 pair</u>
<u>AS12</u>	<u>Yamaha</u>	<u>VXL1W-8</u>	Surface mount side walls - Line Source Loudspeaker, 8 Drivers, White Version. Custom paint per architect color selection	<u>16</u>
<u>AS13</u>	<u>Yamaha</u>	<u>IS1112W</u>	Surface mount subbass Custom paint per architect color selection	<u>4</u>
<u>AS14</u>	<u>Yamaha</u>	<u>IF-2105</u>	Over stage loudspeakers - supply with u-bracket	<u>18</u>
<u>AS15</u>	-	<u>UB2205</u>	U Bracket for IF2205	<u>18</u>
AS16	<u>Yamaha</u>	AFC TUNING	AFC Tuning Fee	1
<u>AS17</u>	-	AFC CHFEE	AFC TUNING Additional Fee per Channel	<u>77</u>
<u>2.40.9</u>	Video & Control Eq	uipment_	_	_
ltem	<u>Make</u>	Model	Description	<u>Qty</u>
<u>V1</u>	<u>Vaddio</u>	Roboshot 30EQDVI	<u>Camera</u>	<u>1</u>
<u>V2</u>	<u>Vaddio</u>	<u>Quick-Conn</u> DVI	Camera Extension	<u>1</u>
<u>V3</u>	Draper Inc	<u>121223</u>	LVC-III/LVC-S Low Voltage Control Module w/Single Station	<u>1</u>
<u>V4</u>	<u>Tascam</u>	<u>Tascam BD-</u> 01U Blu-Ray	-	<u>1</u>
<u>V5</u>	Crestron	<u>AM-200</u>	Media Player	<u>1</u>
<u>V6</u>	Comprehensive	BBD1694-25B	Premium Belden 1694A Digital Video	2
	Video Group		RG6 Cable, BNC Plug to Plug, 25Ft	_
<u>V7</u>	Comprehensive	HD-HD- 6PROBLK	Professional Series Commercial Grade CL3 Rated 26 AWG High Speed HDMI Cable with Ethernet 6' Long	<u>5</u>
<u>V8</u>	Comprehensive Video Group	HD-HD-15EST	Standard Series High Speed HDMI Cable 15Ft	<u>2</u>
<u>V9</u>	Comprehensive Video Group	<u>MVGA15P-P-</u> <u>15HR/A</u>	HR Pro Series Micro VGA HD15 Plug to Plug w/Audio Cable 15Ft	<u>2</u>

<u>V10</u>	Comprehensive	CAT5-350-	Cat5e 350 Mhz Snagless Patch Cable	<u>12</u>
	Video Group	10BLK 10ft Black		
V11	Chief Manufac-	WMA2S	Heavy Duty Wall Mount Accessory	1
	turing Inc		Arm, Double Stud, Extends 13-21"	_
V12	P.S.C.	Necessary Fast	ening Hardware, Accessories	<u>1</u>
<u>V13</u>	P.S.C.	Epson Pro L150	5UNL Projector	<u>1</u>
<u>V14</u>	P.S.C.	Epson Lens: EL	PLW06/W04	<u>1</u>
V15	P.S.C.	Da-Lite Motoriz	ed Projection Screen 180" x 288"	1
		27259C		_
<u>V16</u>	<u>P.S.C.</u>	Unistrut, Misc.	1-1/2In. NPS Pipe and Ceiling Mounting	<u>1</u>
		Hardware		
<u>V17</u>	Windy City Wire	<u>002370-</u> WDW25234	18-03 UNS STR CMP Wht Jkt	<u>250</u>
1/40	Distinum Taala	<u>57 D 145 Chield</u>	ad CatEa/C Campactar, 9 Cand. Madular	20
<u>V18</u>	Platinum Tools	EZ-RJ45 Shield	Cround Por/Unit Price	20
		Flug W/LAternal	Ground, Feirblitt Frice	
<u>V19</u>	<u>P.S.C.</u>	Vaddio RoboSH	IOT 30 Q-USB Camera System	<u>1</u>
<u>V20</u>	Crestron Elec-	<u>DM-TX-4K-100</u>	DigitalMedia 8G+® 4K60 4:4:4 HDR	<u>3</u>
	tronics		Wall Plate Transmitter, Black	
<u>V21</u>	<u>P.S.C.</u>	Panelcrafters D	M-TX Input Rack Panel	<u>1</u>
<u>V22</u>	_	_	_	_
V23	Crestron Elec-	DM-MD8X8	8x8 DigitalMedia Switcher Requires	<u>1</u>
	tronics		DMC Series Input Cards & DMCO Se-	
			ries Output Cards 4RU	
<u>V24</u>	Crestron Elec-	DMC-4KZ-CO-	2-Channel 4K DigitalMedia 8G+ Out-	<u>2</u>
	tronics	<u>HD</u>	put Card for DM Switchers with sup-	
VOF	Ore stress Flag		Port for HDCP 2.2	4
<u>V25</u>	tropics	DIMC-4K-HDO	2-Channel 4K Scaling HDMI Output	<u>1</u>
Voc			Card for DM Switchers.	
<u>V26</u>	Crestron Elec-		4K HDMI® HDCP2 Input Card for DM®	<u> </u>
1/07				
<u>V27</u>	Crestron Elec-		HDBase I Certified 4K DM 8G+ HDCP2	<u>4</u>
1/00				
<u>V28</u>	Crestron Elec-	DM-RMC-4K-	4K DigitalMedia 8G+® Receiver &	<u>3</u>
1/00	tronics	SCALER-C	Room Controller w/Scaler	
<u>V29</u>		<u>-</u>	-	-
<u>V30</u>	DataVideo	<u>TLM-102</u>	Dual 10" Video Monitor	<u>1</u>
V31	PSC	Panelcrafters R	ack Panel for Monitor	1
<u>V32</u>	Extron	SMD351	60-1324-01 H 264 Streaming Media	<u> </u>
<u><u>v 52</u></u>		<u> 0111 001</u>	Processor	<u> </u>
V33	Comprehensive	HD-HD-	Professional Series Commercial	5
		6PROBLK	Grade CL3 Rated 26 AWG High Speed	-
			HDMI Cable with Ethernet 6' Long	
<u>V34</u>	Comprehensive	HD-HD-15EST	Standard Series High Speed HDMI	3
	Video Group		Cable 15Ft	
V35	Comprehensive	MVGA15P-P-	HR Pro Series Micro VGA HD15 Plug	<u>3</u>
	Video Group	<u>15HR/A</u>	to Plug w/Audio Cable 15Ft	
<u>V36</u>	BTX	CD-DB9M	DSUB 9-Pin Male sldr (requires hood)	<u>1</u>
<u>V37</u>	BTX	CD-MX915H	Hood for MaxBlox HD15 & DB9	<u>1</u>

<u>V38</u>	<u>West Penn</u>	<u>WPW</u> 254245F/WND 555630	24 AWG 4 PAIR Solid bare copper conductors, Shielded with an overall jacket, Plenum. Black Jacket	<u>1500</u>
<u>V40</u>	Platinum Tools	PLT100023_X X	EZ-RJ45 Shielded Cat5e/6 Connector, 8-Cond. Modular Plug w/External Ground, Per/Unit Price	<u>20</u>
<u>V40</u>	<u>Cisco</u>	<u>Cisco</u> CBS350-XFP	Network switch #1,#2,#3 for control in ER2.1, ER2.2, ER1.1 - size ports as required	<u>3</u>
<u>V41</u>	Crestron	CP4N	control processor	<u>1</u>
<u>V42</u>	Crestron	TSW-760	Touch panel	<u>3</u>
<u>V43</u>	<u>Netgear</u>	<u>WNDR3400-</u> <u>11NAS</u>	Wireless Access Point for audio	1
<u>V44</u>	Lowell	SEQ-4	<u>4 step sequencer</u>	<u>1</u>
<u>V45</u>	Lowell	<u>SEQ-8</u>	8 step sequencer	<u>1</u>
<u>V46</u>	Lowell	<u>RCP-20</u>	20A relay control recepical	<u>10</u>
<u>V47</u>	Lowell	ACR-1506-LTS	Power strip	<u>2</u>
_	_	_	_	_
<u>2.40.10</u>	<u>Curtains</u>			_
<u>ltem</u>	<u>Make</u>	<u>Model</u>	Description	<u>Qty</u>
<u>C1</u>	<u>P.S.C.</u>	PLACEHOLDE <u>R - Generic</u>	ADC 2928S Motor for Grand	1
<u>C2</u>	ADC	<u>#280</u>	<u>Complete Steel Track, Per Ft., (20 Ft.</u> <u>Minimum)</u>	<u>as req</u>
<u>C3</u>	ADC	<u>#281</u>	<u>Complete Steel Track, Per Ft., (20 Ft.</u> <u>Minimum)</u>	<u>as req</u>
<u>C4</u>	ADC	<u>#2928S</u>	Curtain Motor	<u>1</u>
<u>C5</u>	Stage Decora- tion	PLACEHOLDE R - Generic	<u>50 x 8 Grand Valance 75% Fullness,</u> IFR Charisma Fabric	1
<u>C6</u>	Stage Decora- tion	PLACEHOLDE R - Generic	2P - 18' x 28' Grand Drape 75% Full- ness Charisma Fabric	<u>2</u>
<u>C7</u>	Stage Decora- tion	PLACEHOLDE R - Generic	54 x 5 Borders 50% Fullness 20oz Crescent Fabric	<u>4</u>
<u>C8</u>	Stage Decora- tion	PLACEHOLDE R - Generic	<u>8' x 19' Legs 50% Fullness 20oz.</u> Crescent Fabric	<u>6</u>
<u>C9</u>	Stage Decora- tion	PLACEHOLDE R - Generic	2P - 28' x 19' Mid Stage 50% Fullness 20oz Crescent Fabric	<u>2</u>
<u>C10</u>	<u>Stage Decora-</u> tion	PLACEHOLDE R - Generic	2P - 28' x 19 Up Stage 50% Fullness 20oz. Crescnet Fabric	<u>2</u>
<u>C11</u>	Stage Decora- tion	PLACEHOLDE R - Generic	46' x 19' Seamless FR Cotton Muslin Cyc	<u>1</u>
2.40.11	Stage Lighting - Pl	ace Holder	- -	
Item	Make	Model	Description	Qty
<u>L1</u>	<u>P.S.C.</u>	PLACEHOLDE R - Generic	12/32 SO Multi Cable	<u>as req</u>
<u>L2</u>	SSRC	<u>517</u>	Kellums Grip (1.5In 1.7In.)	<u>8</u>
<u>L3</u>	SSRC	<u>517-1</u>	Eye Kellums Grip (1.5In 1.7In.)	8
<u>L4</u>	West Penn	25236B WPW	Plenum 3-Cond. 14 AWG Cable (for non-powered Unison)	<u>2300</u>

<u>L3</u>	West Penn	<u>254246F</u>	Plenum Rated STP, 100% Foil Shield, 4 Pair 23AWG, Cat6 Cable, Black	<u>2400</u>
L6	ETC		High End Systems Hedgehog 4	1
17	Ranco		2 Pair 24 Gauge DMX Cable Neutrik 5-	as reg
<u></u>	14000		pin Connector, 15Ft	<u>uo roq</u>
L8	Light Source	MAB	MegaClamp C-Clamp for 1"-2" Pipe,	as req
			Black Anodized Finish	<u> </u>
L9	Rapco	NBGDMX5-15	2 Pair 24 Gauge DMX Cable, Neutrik 5-	as req
			pin Connector, 15Ft	
<u>L10</u>	Light Source	MAB	MegaClamp C-Clamp for 1"-2" Pipe,	<u>as req</u>
			Black Anodized Finish	
<u>L11</u>	<u>Rapco</u>	NBGDMX5-15	2 Pair 24 Gauge DMX Cable, Neutrik 5-	<u>as req</u>
			pin Connector, 15Ft	
<u>L12</u>	ETC		CEM3 Retro Upgrade Kit	<u>1</u>
<u>L13</u>	<u>ETC</u>	-	R20 Relay Modules	<u>48</u>
<u>L14</u>	<u>ETC</u>	_	RSN-LV Response 0-10V Gateway	<u>1</u>
<u>L15</u>	ETC	_	RSN-DMX-0-P-4 Response MK2 Port-	<u>12</u>
		_	able Gateway with C-clamp	
<u>L16</u>	<u>ETC</u>	_	E1002 Echo Inspire 2- Button Wall	<u>2</u>
			Stations	
<u>L17</u>	ETC	-	E1006 Echo Inspire 6 – Button Wall	<u>2</u>
140	FTO		Station	
<u>L18</u>	EIC	-	ETS ECHOTOUCH TOUCH Panel Control-	<u>1</u>
1 10	Cisco	<u> </u>	SG250 28MP Notwork Switch	1
<u>L19</u>	Necescary Batch	Boy Batch Cabla	a EtherCon Cobles DMX Cobles and	<u> </u>
	wall plates for we	orking system	S, Litercon Cables, Dinx Cables and	<u> </u>
	-			
1 21	<u>-</u> Canto		200 MSR Followspots 11857180	
1 22				1
	I FTC		9940-12BP/6-R 40' Connector Strip	<u>1</u>
1.22	ETC SSBC		9940-12BP/6-R 40' Connector Strip	<u>1</u> <u>1</u>
L23	<u>SSRC</u>		9940-12BP/6-R 40' Connector Strip 6 Cct. Grid Iron J-Box with 60'- 6 Cct. SO Cable w/ Kollums, Veam Connect	<u>1</u> <u>1</u> <u>6</u>
<u>L23</u>	<u>SSRC</u>	-	9940-12BP/6-R 40' Connector Strip 6 Cct. Grid Iron J-Box with 60'- 6 Cct. SO Cable w/ Kellums, Veam Connect- or Cable Picks w/Pulley Blocks and	<u>1</u> <u>1</u> <u>6</u>
<u>L23</u>	<u>SSRC</u>	-	9940-12BP/6-R 40' Connector Strip 6 Cct. Grid Iron J-Box with 60'- 6 Cct. SO Cable w/ Kellums, Veam Connect- or, Cable Picks w/Pulley Blocks and Counter weight	<u>1</u> <u>1</u> <u>6</u>
<u>L23</u>	<u>ETC</u> SSRC	-	9940-12BP/6-R 40' Connector Strip 6 Cct. Grid Iron J-Box with 60'- 6 Cct. SO Cable w/ Kellums, Veam Connect- or, Cable Picks w/Pulley Blocks and Counter weight 6 Cct 6' Fan-out Cables with GSP	<u>1</u> <u>1</u> <u>6</u> 6
<u>L23</u> L24	<u>ETC</u> SSRC <u>Veam</u>	- -	9940-12BP/6-R 40' Connector Strip 6 Cct. Grid Iron J-Box with 60'- 6 Cct. SO Cable w/ Kellums, Veam Connect- or, Cable Picks w/Pulley Blocks and Counter weight 6 Cct., 6' Fan-out Cables with GSP Connectors	<u>1</u> <u>1</u> <u>6</u> <u>6</u>
<u>L23</u> <u>L24</u> L25	<u>EIC</u> <u>SSRC</u> <u>Veam</u> ETC	- - -	9940-12BP/6-R 40' Connector Strip 6 Cct. Grid Iron J-Box with 60'- 6 Cct. SO Cable w/ Kellums, Veam Connect- or, Cable Picks w/Pulley Blocks and Counter weight 6 Cct., 6' Fan-out Cables with GSP Connectors 9102B-OU 2 Cct. GSP Plug Box w/ U-	<u>1</u> <u>6</u> <u>6</u> 2
<u>L23</u> L24 L25	<u>EIC</u> SSRC <u>Veam</u> <u>ETC</u>	- - -	9940-12BP/6-R 40' Connector Strip 6 Cct. Grid Iron J-Box with 60'- 6 Cct. SO Cable w/ Kellums, Veam Connect- or, Cable Picks w/Pulley Blocks and Counter weight 6 Cct., 6' Fan-out Cables with GSP Connectors 9102B-OU 2 Cct. GSP Plug Box w/ U- Bolt and Offset Bracket	<u>1</u> <u>6</u> <u>6</u> <u>2</u>
<u>L23</u> <u>L24</u> <u>L25</u> <u>L26</u>	EIC SSRC Veam ETC Light Source	- - - - - - <u>MAB</u>	9940-12BP/6-R 40' Connector Strip 6 Cct. Grid Iron J-Box with 60'- 6 Cct. SO Cable w/ Kellums, Veam Connect- or, Cable Picks w/Pulley Blocks and Counter weight 6 Cct., 6' Fan-out Cables with GSP Connectors 9102B-OU 2 Cct. GSP Plug Box w/ U- Bolt and Offset Bracket MegaClamp C-Clamp for 1"-2" Pipe,	<u>1</u> <u>6</u> <u>6</u> <u>2</u> <u>30</u>
<u>L23</u> <u>L24</u> <u>L25</u> <u>L26</u>	ETC SSRC Veam ETC Light Source	- - - - - <u>MAB</u>	9940-12BP/6-R 40' Connector Strip 6 Cct. Grid Iron J-Box with 60'- 6 Cct. SO Cable w/ Kellums, Veam Connect- or, Cable Picks w/Pulley Blocks and Counter weight 6 Cct., 6' Fan-out Cables with GSP Connectors 9102B-OU 2 Cct. GSP Plug Box w/ U- Bolt and Offset Bracket MegaClamp C-Clamp for 1"-2" Pipe, Black Anodized Finish	<u>1</u> <u>6</u> <u>6</u> <u>2</u> <u>30</u>
<u>L23</u> <u>L24</u> <u>L25</u> <u>L26</u> <u>L27</u>	EIC SSRC Veam ETC Light Source ETC	- - - - - <u>MAB</u> <u>Colorsource</u>	9940-12BP/6-R 40' Connector Strip 6 Cct. Grid Iron J-Box with 60'- 6 Cct. SO Cable w/ Kellums, Veam Connect- or, Cable Picks w/Pulley Blocks and Counter weight 6 Cct., 6' Fan-out Cables with GSP Connectors 9102B-OU 2 Cct. GSP Plug Box w/ U- Bolt and Offset Bracket MegaClamp C-Clamp for 1"-2" Pipe, Black Anodized Finish LED stage lighting fixture with DMX.	<u>1</u> <u>6</u> <u>2</u> <u>30</u> <u>30</u>
<u>L23</u> <u>L24</u> <u>L25</u> <u>L26</u> <u>L27</u>	EIC SSRC Veam ETC Light Source ETC	- - - - MAB Colorsource Spot	9940-12BP/6-R 40' Connector Strip 6 Cct. Grid Iron J-Box with 60'- 6 Cct. SO Cable w/ Kellums, Veam Connect- or, Cable Picks w/Pulley Blocks and Counter weight 6 Cct., 6' Fan-out Cables with GSP Connectors 9102B-OU 2 Cct. GSP Plug Box w/ U- Bolt and Offset Bracket MegaClamp C-Clamp for 1"-2" Pipe, Black Anodized Finish LED stage lighting fixture with DMX. Include one 10' PowerCON/DMX com-	<u>1</u> <u>6</u> <u>2</u> <u>30</u> <u>30</u>
<u>L23</u> <u>L24</u> <u>L25</u> <u>L26</u> <u>L27</u>	EIC SSRC Veam ETC Light Source ETC	- - - - MAB Colorsource Spot	9940-12BP/6-R 40' Connector Strip 6 Cct. Grid Iron J-Box with 60'- 6 Cct. SO Cable w/ Kellums, Veam Connector, Cable Picks w/Pulley Blocks and Counter weight 6 Cct., 6' Fan-out Cables with GSP Connectors 9102B-OU 2 Cct. GSP Plug Box w/ U-Bolt and Offset Bracket MegaClamp C-Clamp for 1"-2" Pipe, Black Anodized Finish LED stage lighting fixture with DMX. Include one 10' PowerCON/DMX combo jumper cable per fixture	<u>1</u> <u>6</u> <u>2</u> <u>30</u> <u>30</u>
<u>L23</u> <u>L24</u> <u>L25</u> <u>L26</u> <u>L27</u> <u>L28</u>	EIC SSRC Veam ETC Light Source ETC ETC	- - - - MAB Colorsource Spot Colorsource	9940-12BP/6-R 40' Connector Strip 6 Cct. Grid Iron J-Box with 60'- 6 Cct. SO Cable w/ Kellums, Veam Connect- or, Cable Picks w/Pulley Blocks and Counter weight 6 Cct., 6' Fan-out Cables with GSP Connectors 9102B-OU 2 Cct. GSP Plug Box w/ U- Bolt and Offset Bracket MegaClamp C-Clamp for 1"-2" Pipe, Black Anodized Finish LED stage lighting fixture with DMX. Include one 10' PowerCON/DMX com- bo jumper cable per fixture 10 Degree Lens Tube	<u>1</u> <u>6</u> <u>2</u> <u>30</u> <u>30</u> <u>10</u>
<u>L23</u> <u>L24</u> <u>L25</u> <u>L26</u> <u>L27</u> <u>L28</u> <u>L28</u> <u>L29</u>	ETC SSRC Veam ETC Light Source ETC ETC ETC	- - - - <u>MAB</u> <u>Colorsource</u> <u>Spot</u> <u>Colorsource</u> <u>Spot</u> <u>Colorsource</u> -	<u>9940-12BP/6-R 40' Connector Strip</u> <u>6 Cct. Grid Iron J-Box with 60'- 6 Cct.</u> <u>SO Cable w/ Kellums, Veam Connector</u> <u>or, Cable Picks w/Pulley Blocks and</u> <u>Counter weight</u> <u>6 Cct., 6' Fan-out Cables with GSP</u> <u>Connectors</u> <u>9102B-OU 2 Cct. GSP Plug Box w/ U-Bolt and Offset Bracket</u> <u>MegaClamp C-Clamp for 1"-2" Pipe,</u> Black Anodized Finish LED stage lighting fixture with DMX. Include one 10' PowerCON/DMX combo jumper cable per fixture 10 Degree Lens Tube 14 Degree Lens Tube	<u>1</u> <u>6</u> <u>2</u> <u>30</u> <u>30</u> <u>10</u> <u>12</u>
<u>L23</u> <u>L24</u> <u>L25</u> <u>L26</u> <u>L27</u> <u>L28</u> <u>L29</u> <u>L30</u>	EIC SSRC Veam ETC Light Source ETC ETC ETC ETC	- - - - MAB Colorsource Spot Colorsource - - Colorsource - -	<u>9940-12BP/6-R 40' Connector Strip</u> <u>6 Cct. Grid Iron J-Box with 60'- 6 Cct.</u> <u>SO Cable w/ Kellums, Veam Connector</u> or, Cable Picks w/Pulley Blocks and <u>Counter weight</u> <u>6 Cct., 6' Fan-out Cables with GSP</u> <u>Connectors</u> <u>9102B-OU 2 Cct. GSP Plug Box w/ U-</u> <u>Bolt and Offset Bracket</u> <u>MegaClamp C-Clamp for 1"-2" Pipe,</u> <u>Black Anodized Finish</u> <u>LED stage lighting fixture with DMX.</u> <u>Include one 10' PowerCON/DMX com-</u> bo jumper cable per fixture <u>10 Degree Lens Tube</u> <u>14 Degree Lens Tube</u> <u>26 Degree Lens Tube</u>	<u>1</u> <u>6</u> <u>2</u> <u>30</u> <u>30</u> <u>10</u> <u>12</u> <u>4</u>
<u>L23</u> <u>L24</u> <u>L25</u> <u>L26</u> <u>L27</u> <u>L28</u> <u>L29</u> <u>L30</u> <u>L31</u>	EIC SSRC Veam ETC Light Source ETC ETC	- - - - MAB Colorsource Spot Colorsource - - - - - - - - - - - - -	9940-12BP/6-R 40' Connector Strip 6 Cct. Grid Iron J-Box with 60'- 6 Cct. SO Cable w/ Kellums, Veam Connector, Cable Picks w/Pulley Blocks and Counter weight 6 Cct., 6' Fan-out Cables with GSP Connectors 9102B-OU 2 Cct. GSP Plug Box w/ U-Bolt and Offset Bracket MegaClamp C-Clamp for 1"-2" Pipe, Black Anodized Finish LED stage lighting fixture with DMX. Include one 10' PowerCON/DMX combo jumper cable per fixture 10 Degree Lens Tube 14 Degree Lens Tube 4 Degree Lens Tube	<u>1</u> <u>6</u> <u>2</u> <u>30</u> <u>30</u> <u>10</u> <u>12</u> <u>4</u> <u>4</u>
<u>L23</u> <u>L24</u> <u>L25</u> <u>L26</u> <u>L27</u> <u>L28</u> <u>L29</u> <u>L30</u> <u>L31</u> <u>L32</u>	EIC SSRC Veam ETC Light Source ETC ETC ETC ETC ETC ETC ETC ETC ETC	- - - - MAB Colorsource Spot Colorsource - - - - Colorsource - - - - - - - - - - - - -	9940-12BP/6-R 40' Connector Strip 6 Cct. Grid Iron J-Box with 60'- 6 Cct. SO Cable w/ Kellums, Veam Connect- or, Cable Picks w/Pulley Blocks and Counter weight 6 Cct., 6' Fan-out Cables with GSP Connectors 9102B-OU 2 Cct. GSP Plug Box w/ U- Bolt and Offset Bracket MegaClamp C-Clamp for 1"-2" Pipe, Black Anodized Finish LED stage lighting fixture with DMX. Include one 10' PowerCON/DMX com- bo jumper cable per fixture 10 Degree Lens Tube 14 Degree Lens Tube 26 Degree Lens Tube LED stage lighting fixture with DMX. 14 Degree Lens Tube 4 Degree Lens Tube	<u>1</u> <u>6</u> <u>2</u> <u>30</u> <u>30</u> <u>10</u> <u>12</u> <u>4</u> <u>42</u>
<u>L23</u> <u>L24</u> <u>L25</u> <u>L26</u> <u>L27</u> <u>L28</u> <u>L29</u> <u>L30</u> <u>L31</u> <u>L32</u>	EIC SSRC Veam ETC Light Source ETC ETC ETC ETC ETC ETC ETC ETC	- - - - MAB Colorsource Spot Colorsource - - Colorsource - - - Colorsource - - - Colorsource Par	9940-12BP/6-R 40' Connector Strip 6 Cct. Grid Iron J-Box with 60'- 6 Cct. SO Cable w/ Kellums, Veam Connect- or, Cable Picks w/Pulley Blocks and Counter weight 6 Cct., 6' Fan-out Cables with GSP Connectors 9102B-OU 2 Cct. GSP Plug Box w/ U- Bolt and Offset Bracket MegaClamp C-Clamp for 1"-2" Pipe, Black Anodized Finish LED stage lighting fixture with DMX. Include one 10' PowerCON/DMX com- bo jumper cable per fixture 10 Degree Lens Tube 26 Degree Lens Tube 4 Degree Lens Tube LED stage lighting fixture with DMX. Include one 10' PowerCON/DMX com- bo jumper cable per fixture	$ \frac{1}{1} \frac{1}{6} \frac{6}{2} \frac{30}{30} \frac{30}{10} \frac{10}{12} \frac{4}{4} \frac{4}{2} $

<u>L33</u>	ETC	<u>Colorsource</u> <u>Cyc</u>	LED stage lighting fixture with DMX. Include one 10' PowerCON/DMX com- bo jumper cable per fixture	<u>12</u>
2.40.12 Stage Rigging		I		
Item	Make	Model	Description	Qty
Rig 1			Turnkey system as shown on EPS	1
	-	-	Drawing Set from SRS Systems.	
Rig 2			Custom Line Shaft batten lift system	1
Rig 3	-	-	Custom Dead Hung batten system	1
Ria 4	-	-	Removal of existing grid	1
Rig 5	-	-	Contact Les Martin: Imar-	-
2.40.13	General list of wire	and connector tv	Des:	
ltom	Mako	Model	Description	Otv
G1	West Bonn	25201B BK	2 Cond. 22 Awa Blonum Shieldod Au	
<u> </u>	westrenn	<u>252910-DR</u>	dio Line Level Cable with black lacket	asiey
62	West Bonn	D25420	Blonum Two Individually Shieldod	26 F00
02	West Feilin	<u>DZ3430</u>	Pairs of 22 Ga. Conductors with Drain	asiey
			Wire.	
G3	West Penn	25225B	2-Cond. 16 Awg Plenum-Rated	as req
			Speaker Cable: 70V Loudspeakers	<u></u>
G4	West Penn	25226B	2-Cond. 14 Awg Plenum-Rated	as req
			Speaker Cable: Acoustic System	
			Loudspeakers	
<u>G5</u>	<u>West Penn</u>	<u>25227B</u>	2-Cond. 12 Awg Plenum Speaker Ca-	<u>as req</u>
			ble: Main Left and Right Arrays	
<u>G6</u>	<u>West Penn</u>	<u>25210</u>	2-Cond. 10 Awg Plenum-Rated	<u>as req</u>
			Speaker Cable: Main Subbass	
<u>G7</u>	WPW	<u>254245</u>	Plenum-Rated Cat 5e Cable	<u>as req</u>
<u>G8</u>	<u>Belden</u>	<u>9729</u>	DMX Control Cable	<u>as req</u>
<u>G9</u>	<u>Neutrik</u>	NC3FDL-1-	XLR Female Panel latchless	<u>as req</u>
		BAG-O		
<u>G10</u>	Neutrik	NC3MDL-1-	XLR Male Panel	<u>as req</u>
C11	Noutrik		VI B Fomolo Coblo	00 F00
<u>G11</u>	Neutrik			
<u>G12</u>	Switcheroft	25055	ALR Male Cable	<u>as req</u>
<u>G13</u>	<u>Switchcrait</u>	<u>3505F</u>	Plus Panel	<u>as req</u>
015	<u>WECU</u>			as req
<u>G15</u>	<u>Neutrik</u>	<u>NL4MP or</u> <u>NL4MPR</u>	<u>4 conductor speaker panei</u>	<u>as req</u>
<u>G16</u>	<u>Neutrik</u>	<u>NL4MX-BAG</u>	4 conductor speaker cable	<u>as req</u>
<u>G17</u>	Proco	<u>Plateworks</u>	Stainless Steel	<u>as req</u>
<u>G18</u>	WECO	323-HDS/12	Eurostyle Screw Terminal Strip, 12	as req
			Circuit, Accepts 20-12 AWG Wire	
2.40.14	Orchestra Shell To	wers - Per Appen	ndix 1	_
Item	Make	Model	Description	<u>Qty</u>
<u>OT1</u>	Wenger	Legacy	6'W x 13'6"H folding tower - painted	<u>12</u>
<u>OT5</u>	Wenger	<u>Diva</u>	8'x8' Curved reflective ceiling diffuser.	<u>7</u>

PART 3 – EXECUTION

3.1 ACCURACY OF DATA

- A. It shall be the sole responsibility of the Contractor to verify all dimensions, take his own field measurements, and install all work to suit conditions encountered on the job site.
- B. The drawings are generally diagrammatic and except where dimensions are indicated are not intended to show exact locations of outlets, conduits, etc. All work shall be installed as nearly as possible in the locations indicated, with minor adjustments as required to avoid interferences with structure or the work of other trades.
- C. Prior to beginning work, the Contractor shall carefully examine all construction drawings and the job site and report to the Owner any discrepancies or interference that may be discovered. If, during the course of construction, any such discrepancies or interferences are noted, the Contractor shall promptly report them to the Owner. Failure to report such discrepancies or interferences shall result in the correction of the same at the Contractor's expense. All work under this specification, which either interferes with the architectural or any other work or deviates from the drawings and specifications without prior approval of the Owner, shall be altered by the Contractor at his expense. These alterations shall clear such interferences or shall comply with the drawings and specifications as directed by the Owner.

3.2 MECHANICAL

- A. Except for portable equipment, all other equipment must be permanently installed. This shall include equipment racks, speakers, cables, etc. Fastenings and supports must provide a safety factor of at least three times that required for safe support. Precautions must be taken to prevent electrostatic and electromagnetic hum and radio frequency interference. All electronic equipment must be easily accessible and have adequate ventilation.
- B. The rigging of loudspeaker arrays and speakers shall be performed by a rigging professional and hung and supported by approved industry standard equipment.

3.3 CONNECTIONS

A. All low voltage wiring connections must be made with rosin core solder or mechanical connectors as specified. Terminations on all cable must be dressed properly with shrink tubing. All low voltage control level connections to terminal blocks are to be made with crimp on spade lugs. All crimp on connectors must be fastened with the proper tool as specified by the manufacturer. Improper crimping will be cause for rejection. All "drain" wires on microphone and line level terminations are to be properly dressed using transparent shrink tubing to avoid the possibility of shorting "whiskers".

3.4 LABELS

A. All wiring is to be numbered on both ends with "EZ Code" type markers. Wire numbers are to be secured with transparent shrink tubing. Wire numbers are to follow a logical sequence and are to be listed on the proper document. "Brady" type labels are acceptable.

3.5 DOCUMENTATION

A. Upon final completion of the system a documentation package is to be turned over to the Owner and include the following items:

- 1. System signal flow diagrams (for audio, video, and control) showing all components, interconnections, and connector types and wire numbers. As-built revisions are to be noted on the submittal drawings.
- 2. Manufacturer instruction manuals for all electronics.
- 3. Product specification sheets for all equipment without instruction manuals such as microphones, loudspeakers and lighting instruments.

- 4. Copies of the proof of performance data. Provide one original (no photocopies) and one copy (photocopies are acceptable) of the total documentation package.
- 5. A single copy of the system signal flow diagram with wire numbers indicated is to be laminated and posted in the door of the sound equipment rack.
- 6. Special documentation is required as part of the Owner training and operation of the systems. This documentation is to consist of an instruction sheets that describe the operation of the system from the stage. Each instruction sheet is to be step by step "cookbook" with touchscreen panel screen shots with arrow indicators that describe step and function. A laminated poster version of this instruction sheet is to be mounted on the side of each equipment rack. The bullet points detailed on this sheet include:
 - a. Turning on system power.
 - b. Select desired source.
 - c. Adjust volume levels
 - d. Select lighting presets (where applicable)
 - e. Recording stop/start functions (where applicable)
 - f. VTC calling functions (where applicable)
 - g. Other functions of the Owner control panel.

3.6 CLEAN UP

A. During construction periodically remove discarded containers and refuse from the job site. At the completion of the job the sound system components and equipment areas are to be left clean and neat and all refuse removed from the site.

3.7 SOUND SYSTEM TEST AND MEASUREMENT

- A. The contractor is to conduct a performance verification test for the Owner. The contractor must complete the installation and verify that it is in working order and conforms to the following performance criteria. These performance standards are set forth as an indication of a properly installed and functioning sound system. It is implied through his action of submitting a bid that the contractor has reviewed these documents and is in agreement with the concept and execution of the design of the specified sound system. No financial adjustments will be allowed for discrepancies discovered after bid is accepted.
 - 1. In rooms where voice lift or voice reinforcement is required, there is a programmable DSP in the system. The contractor is expected to tune the system to eliminate any hot frequencies in the room that would cause premature feedback as well as blemish the sound quality of the microphones.
 - 2. Microphone line resistance: Less than 1.7 Ohms with short at input jack. Measured from mixer end of microphone cable. Measure with Ohm meter.
 - 3. Maximum amp output: 100% of rated power at less than 0.25% THD. Measure with distortion analyzer.
 - 4. Signal to noise ratio: Better than 80 dB or an absolute noise level less than 62 dBm for systems with +18 dBm maximum line operating level. Measured at amplifier input with RMS voltmeter with dB scale.
 - 5. Audio frequency response: +/- 1 dB 50 Hz to 15 kHz control equalizer set flat and room equalizers switched out Microphone input to amplifier output. Measure with RTA.
 - 6. Polarity: All microphones and source equipment are to be wired so as to be in absolute polarity with the loudspeaker systems. Measure with polarity checker.
 - 7. Synchronize delay and fill systems to within 15 milliseconds of first arrival of primary loudspeaker system as measured on Smaart or TEF measurement systems.
 - 8. Acoustic coverage: Maximum +/- 3 dB SPL variance front to rear / side-to-side in audience area through the 4 kHz full octave band. Measure with octave band Sound Level Meter.
 - 9. Acoustic amplitude response: With the room equalizers switched in +/- 3 dB maximum deviation from the following curve averaged from three test positions in the audience area flat 60 Hz to 2 kHz, 10 dB at 50 Hz and 12 kHz. Measure with RTA.

- 10. Electroacoustic gain: No less than 15 dB from 500 Hz to 4 kHz with one microphone and 12-inch source to microphone distance. Gain is to be measured 50 feet from the source. Measure with Sound Level Meter.
- 11. Maximum sound level: Greater than 85 dB-C for large conference spaces when amplifier occasionally clips on program peaks. Measure with Sound Level Meter.
- 12. Acoustic noise floor: No audible hum, hiss, or R.F. interference shall be audible under normal room conditions in audience seating area and stage or platform areas.
- 13. All loudspeakers are to exhibit the same acoustic polarity. Measure with Polarity Checker (Galaxy Cricket).

3.8 VIDEO SYSTEM PROOF OF PERFORMANCE

- A. Verify all devices and cables match information on final drawings
- B. Test all inputs on video switcher / scaler.
- C. Adjust Color Temperatures on projectors to accurately reproduce NTSC and RGBHV Data Color Bars.
- D. Adjust projector images to match screen size, eliminating any overscan, underscan or keystone.
- E. Adjust all switching functions to eliminate sync roll or glitches upon switching.
- F. Test all video sources for full operation. Test all data sources up to maximum projector frequency.
- G. Test audio output of switcher scaler. Verify that all input audio levels are equal. Verify maximum audio output not to exceed +4dB.
- H. Verify there are no 60hz grounding interference aka "humbars" existing in displayed images.
- I. Optimize projector contrast, sharpness and brightness to avoid blooming and achieve optimal black level.
- J. Commissioning of Digital Media System by certified Digital Media Engineer.
- 3.9 LIGHTING SYSTEM COMMISSIONING
 - A. Commissioning by ETC Certified Specialist

END OF AUDIO VIDEO AND LIGHTING SYSTEMS FOR 27 41 16

APPENDIX 1 – ORCHESTRA SHELL SPECIFICATIONS

PART 1 GENERAL

Supply and coordinate orchestra shell tower equipment with Wenger Corporation, 555 Park Drive, Owatonna, MN 55060-4940, 505-455-4100. - Jeff Frost Jeff.Frost@wengercorp.com.

PART 2 EQUIPMENT

2.2 SECTION INCLUDES.

2.2.1 <u>Theater and stage equipment including the following:</u> 2.5<u>Acoustical clouds.</u> 2.6<u>Acoustic tower, Legacy Select Acoustic Tower.</u>

2.3 RELATED SECTIONS

2.3.1 Section 05 50 00 - Metal Fabrications.

- 2.3.2 Section 06 10 00 Rough Carpentry.
- 2.3.3 Section 09 22 16.13 Non-Structural Metal Stud Framing.
- 2.3.4 Division 16 Electrical for power wiring.

2.4 <u>REFERENCES</u>

- 2.4.1 <u>American Hardboard Association (AHA):</u> 2.5<u>AHA A135.4-95: Basic Hardboard.</u>
- 2.4.2 <u>American Plywood Association (APA).</u> 2.5<u>Performance Standards and Policies for Structural Use Panels.</u>
- 2.4.3 <u>American Society of Civil Engineers (ASCE):</u> 2.5<u>ASCE 7 - Minimum Design Loads for Buildings and Other Structures.</u>
- 2.4.4 <u>Architectural Woodwork Institute (AWI):</u> 2.5<u>Quality Manual, 8th Edition.</u>
- 2.4.5 ASTM International (ASTM):
 - 2.5ASTM A36/A 36M Standard Specification for Carbon Structural Steel.
 - 2.6<u>ASTM A500 Standard Specification for Cold-Formed Welded and Seamless Carbon</u> <u>Steel Structural Tubing in Rounds and Shapes.</u>
 - 2.7<u>ASTM A513 Standard Specification for Electric-Resistance-Welded Carbon and Alloy</u> Steel Mechanical Tubing.
 - 2.8<u>ASTM A1011 Standard Specification for Steel, Sheet and Strip, Hot Rolled, Carbon,</u> <u>Structural, High-Strength Low Alloy, High-Strength Low Alloy With Improved Formabil-</u> <u>ity, and Ultra High Strength.</u>
 - 2.9ASTM B85 Standard Specification for Aluminum Alloy Die Castings.
 - 2.10 ASTM B209 Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
 - 2.11 <u>ASTM B221 Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods,</u> <u>Wire, Profiles, and Tubes.</u>
 - 2.12 ASTM B429 Specification for Aluminum-Alloy Extruded Structural Pipe and Tube.
 - 2.13 <u>ASTM C423 Standard Test Method for Sound Absorption and Sound Absorption</u> <u>Coefficients by the Reverberation Room Method.</u>
 - 2.14 <u>ASTM E84 Standard Test Method for Surface Burning Characteristics of Building</u> <u>Materials.</u>
 - 2.15 ASTM E 413 Classification for Rating Sound Transmission.
- 2.4.6 International Building Code (IBC). 2.5IBC 2018, Chapter 8.
- 2.4.7 <u>National Association of Architectural Metal Manufacturers (NAAMM): Metal Finishes Manual</u> for Architectural and Metal Products.
- 2.4.8 <u>National Electrical Manufacturers Association (NEMA): NEMA LD 3-2000 High Pressure</u> <u>Decorative Laminates.</u>
- 2.4.9 U.S. Department of Commerce, National Institute of Standards and Technology: DOC PS 1: U.S. Product Standard for Construction and Industrial Plywood.
- 2.4.10 <u>US Green Building Council (USGBC): Leadership in Energy and Environmental Design</u> (LEED).

2.5 SUBMITTALS

- 2.5.1 Submit under provisions of Section 01 30 00 Administrative Requirements.
- 2.5.2 <u>Product Data: Manufacturer's data sheets on each product to be used, including:</u> 2.5<u>Provide test results by certified independent testing laboratory indicating compliance with</u> performance requirements.
 - 2.6<u>Rated capacities, construction details, material descriptions, dimensions of individual</u> components, profiles, and finishes.
 - 2.7 Maintenance instructions and recommendations.
 - 2.8<u>Acoustical testing data demonstrating minimal compliance with required acoustical per-</u> formance criteria.
 - 2.9 Photometric data for light fixtures, if applicable to the product.
- 2.5.3 LEED Submittals:
 - 2.5<u>Manufacturer's certificate indicating that composite wood products and adhesives contain</u> <u>no added urea formaldehyde.</u>
 - 2.6<u>Manufacturer's certificate indicating percentages by weight of post-consumer and pre-</u> consumer recycled content. Include statement indicating costs for each product having recycled content.
 - 2.7 <u>Credit EQ 4.4</u>: Manufacturer's Signed Confirmation indicating that composite wood products and adhesives used in acoustical shells contain no urea formaldehyde.
- 2.5.4 Shop Drawings:
 - 2.5<u>Submit component and project specific installation drawings, cut sheets, and schedules</u> showing all information necessary to fully explain the design features, appearance, function, fabrication, installation, and use of system components in all phases of operation. Submit for approval before beginning any fabrication, installation, or erection.
 - 2.6 Include fabrication and installation details. Distinguish between factory and field work.
 - 2.7 Include plans, elevations, sections, attachments and work by other trades.
 - 2.8 Include wiring diagrams when applicable.
 - 2.9 Indicate seismic bracing and fastening requirements as applicable.
- 2.5.5 Product Schedule:

2.5<u>Use designations indicated on the Drawings.</u>

2.6 Include room locations, dimensions, accessories, finishes, and project specific notes.

- 2.5.6 Verification Samples:
 - 2.5<u>Exposed Finishes and Finish Materials: Not less than 4 by 4 inches (102 by 102 mm), for</u> each type, color, pattern, surface and material selected.
- 2.5.7 Closeout Submittals:
 - 2.5<u>Operation and Maintenance Data: For adjusting, repairing and replacing components and accessories.</u>
 - 2.6 Warranty: Submit manufacturer's warranty.
 - 2.7 As-Built Drawings: For completed work.

2.6 QUALITY ASSURANCE

- 2.6.1 <u>Source Limitations: Obtain all products from a single manufacturer through one source</u> providing a comprehensive material and installation package:
- 2.6.2 <u>Manufacturer Qualifications: Minimum 5 years' experience in design and manufacturing of</u> <u>similar products on projects of similar size, scope and complexity, and with the production</u> <u>capacity to meet the construction and installation schedule.</u>
- 2.6.3 Installer Qualifications: ESTA-certified and experienced in installation of the work of this sec-

tion and acceptable to the manufacturer and in the regular employ of the manufacturer.

- 2.6.4 <u>Electrical Components: Listed and labeled per NFPA 70, Article 100 by a testing agency ac-</u> ceptable to Authorities Having Jurisdiction (AHJ).
- 2.6.5 <u>Regulatory Requirements: Where components are indicated to comply with accessibility re-</u> <u>quirements, comply with the U.S. Architectural and Transportation Barriers Compliance</u> <u>Board's "Americans with Disabilities Act (ADA) and Architectural Barriers Act (ABA) Acces-</u> <u>sibility Guidelines for Buildings and Facilities".</u>

2.7 DELIVERY, STORAGE, AND HANDLING

- 2.7.1 Deliver materials in manufacturer's original unopened containers with manufacturer's labels attached. Do not deliver material until spaces to receive them are clean, dry, and ready for their installation. Ship to jobsite only after roughing-in, painting and other finishing work has been completed, installation areas are ready to accept work.
- 2.7.2 Handle and install materials to avoid damage.

2.8 PROJECT CONDITIONS

- 2.8.1 Environmental Limitations: Do not deliver or install materials until spaces are enclosed and weather tight, wet work in spaces is complete and dry, HVAC system is operating and maintaining ambient temperature at occupancy levels during the remainder of the construction period.
- 2.8.2 Field Measurements: Verify field measurements as indicated on Shop Drawings. Where measurements are not possible, provide control dimensions and templates.
 2.5 Coordinate installation and location of blocking and supports as requested.
 - 2.6<u>Verify openings, clearances, storage requirements and other dimensions relevant to the</u> installation and final application.
 - 2.7 Where applicable, coordinate locations of electrical junction boxes.
- 2.8.3 <u>Field Measurements: Verify field measurements as indicated on Shop Drawings. Where</u> <u>measurements are not possible, provide control dimensions and templates.</u> 2.5<u>Coordinate locations of electrical junction boxes.</u>
- 2.8.4 <u>Ensure that products of this section are supplied to affected trades in time to prevent interrup-</u> tion of construction progress.

PART 3 - PRODUCTS

3.1 MANUFACTURERS

- 3.1.1 <u>Requests for substitutions shall be considered in accordance with provisions of Section 01 60</u> <u>00 - Product Requirements.</u>
 - 3.5 Manufacturers seeking approval shall submit the following:
 - A. <u>Product data, including third-party certified acoustical data and proposed graph-</u> ic/drawing layout for this project.
 - B. <u>Project references: Minimum of 5 installations not less than 3 years old, of com-</u> parable size, scope and complexity of this project, complete with owner contact information.
 - C. Sample warranty.
 - 3.6Submit substitution request not less than required days prior to bid date.
 - 3.7 Approval shall be indicated by issuance of written Addendum.
 - 3.8 Approved manufacturers shall meet separate requirements of Submittals Article.

3.9<u>Manufacturers' products that are either listed as pre-approved in these Specifications or</u> who have been granted approval as an alternate must still demonstrate all of the material performance and operational characteristics required by this Section.

3.2 ACOUSTICAL CLOUDS

- 3.2.1 Basis of Design: DIVA Acoustical Clouds as manufactured by Wenger Corporation.
- 3.2.2 <u>Acoustical Panel Sound Transmission: Provide third party test results indicating acoustical shell system comprised of acoustical shell panels have the following sound transmission requirements:</u>
 3.5Sound Transmission Class (STC): Minimum 21 per ASTM E 413.
- 3.2.3 Materials:
 - 3.5<u>Aluminum Extruded Bars, Profiles, and Tubes: ASTM B 221 (ASTM B 221M), 6063T al-</u>loy.
 - 3.6 Steel Tube: ASTM A 501, hot formed steel tubing.
 - 3.7 Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, commercial steel, Type B.
 - 3.8<u>Veneer-Faced Panel Products (MDF core)</u>: Meets all CARB-2 requirements for formaldehyde emissions.
 - 3.9Hardboard: AHA A135.4, Class 1 Tempered formaldehyde free.
 - 3.10 High-Pressure Decorative Laminate: NEMA LD 3, Grade VGS.
 - A. <u>HPDL with urea formaldehyde-free adhesive.</u>
- 3.2.4 <u>Acoustical Cloud Panels: Manufacturer's standard stressed-skin composite acoustical cloud</u> panels, with STC meeting performance requirements, designed to mix and blend sound and reflect a maximum range of audible frequencies to audience.
 - 3.5<u>Core: 1-1/2 inches thick (38 mm) honeycomb core material shall have an open geometric</u> pattern with cell walls vertical to panel skins and defined by alternating straight and sine wave layers. Height of sine wave shall be 1/2 inch, wall thickness shall correspond to 60 lb kraft. Bonding of core material to panel faces shall be with permanently cured urethane adhesive. Foam core materials and contact adhesives shall not be permitted.
 - 3.6 Back: 3/16 inch (4.8 mm) thick hardboard stressed skin, painted black.
 - 3.7<u>Panel Edge Frame: Straight panel edges are reinforced with extruded aluminum edge</u> <u>frame.</u>
 - 3.8<u>Acclimate panel face and back materials in a temperature and humidity controlled envi-</u> ronment for a minimum of 72 continuous hours so that they reach appropriate equilibrate condition prior to lamination to improve dimensional stability of finished laminated panels.
 - A. Documentation of specified process must be available for review.
- 3.2.5 <u>Overhead Sound Reflecting Acoustical Cloud: Acoustical cloud panels suspended directly</u> <u>from overhead supports.</u>
 - 3.5 Cloud Panel Size and Configuration: As indicated.
 - 3.6 Cloud Panel Face Finish:
 - A. <u>Hardwood Plywood Veneer: Plain sliced, slip-matched and balance matched to</u> <u>maintain a uniform leaf width across the full width of the panel.</u>
 - 1. <u>Veneer must be a minimum of 80+ or 85+ grade.</u> Grade A veneer, or veneer of a lesser grade, is not acceptable.
 - 2. Sort veneer by grain density, grain structure, and color.
 - 3. <u>Clip around character marks to minimize pin knots, mineral, gum, sap, and</u> <u>color variation.</u>
 - 4. <u>Individually clip and hand splice each veneer leaf with the grain cathedrals</u> centered in the middle of each leaf. Veneer leaves with grain cathedrals

not centered shall be rejected as unacceptable for the Work of this Section.

- 3.2.6 Cloud Suspension: Shackle from each of four corners to overhead supports.
- 3.2.7 <u>Miscellaneous Supports: Battens, channels, and other miscellaneous supports are part of the</u> work of Division 05 Section "Metal Fabrications."
- 3.2.8 <u>Acoustical Cloud Installation Accessories:</u> 3.5<u>Shackles: Rated screw pin shackles.</u>
- 3.2.9 Finishes:
 - 3.5 Aluminum Framing: Painted.
 - 3.6 Painted Finish for Acoustical Cloud Panel: Sherwin Williams Kem Aqua Paint.
 - 3.7 <u>Transparent Wood Finish for Acoustical Cloud Panel Face: Manufacturer's standard,</u> comparable to AWI custom grade acrylic lacquer.

3.3 ACOUSTIC TOWER (LEGACY SELECT ACOUSTIC TOWER)

- 3.3.1 <u>Basis of Design: Legacy Select Acoustic Tower as manufactured by Wenger Corporation;</u> <u>mobile acoustical towers.</u>
- 3.3.2 Materials:
 - 3.5<u>Aluminum Extruded Bars, Profiles, and Tubes: ASTM B 221 (ASTM B 221M), 6063T alloy.</u>
 - 3.6 Steel Tube: ASTM A 500, hot formed steel tubing
 - 3.7 Hardboard: AHA A135.4, Class 1 Tempered urea formaldehyde free.
 - 3.8 High-Pressure Decorative Laminate: NEMA LD 3, Grade VGS.
 - A. <u>HPDL with urea formaldehyde-free adhesive.</u>
- 3.3.3 <u>Acoustical Shell Panels: Manufacturer's standard stressed-skin composite acoustical shell</u> panels, designed to mix and blend sound and reflect a maximum range of audible frequencies to both audience and performers.
 - 3.5<u>Core: 3/4-inch (19-mm) thick honeycomb, resin-impregnated, bonded to frame and faces</u> with permanent urethane adhesive. Contact cement adhesive does not meet the reguirements of this specification.
 - 3.6 Face, Painted Panel: 3/16-inch (5-mm) thick hardboard stressed skin, material and finish as indicated, with no exposed fasteners.
 - 3.7 Back: 3/16-inch (5-mm) thick hardboard stressed skin, painted black.
 - 3.8 Panel Edge Frame: Extruded aluminum edge angle, along straight edges.
- 3.3.4 <u>Mobile Acoustical Towers: Free-standing, self-supporting, movable towers. Towers consist of</u> <u>acoustical shell panels with rigid steel frame in nesting configuration. Tower is equipped with</u> <u>removable bottom filler panel that stores on back of tower. Counterweighted tower base,</u> <u>painted black, with non-marring casters.</u>
 - 3.5Size: 6 feet (1829 mm) wide.
 - 3.6 Height: 11 feet 6 inches (3505 mm).
 - 3.7Panel Radius: 10 feet (3050 mm).
 - 3.8<u>Fabrication: Construct panels utilizing nested configuration and folding top to enable</u> <u>nested storage and passage of panel through 34 by 80 inch (864 by 2032 mm) door</u> <u>opening. Equip top panels with compression gas springs to support raising and lowering of panel. Include standard tools required to raise and lower panels.</u>
 - 3.9 Panel Hinges: Self-lubricating ABS bushings and steel framework.

PART 4 - EXECUTION

4.1 EXAMINATION

- 4.1.1 Examine installation areas and mounting surfaces with Installer present, for compliance with manufacturer's installation tolerances including required clearances, floor level, location of blocking and anchoring reinforcements, and other existing conditions that may affect installation or performance.
- 4.1.2 <u>Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work. If preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.</u>
- 4.1.3 Proceed with installation only after correction of unsatisfactory conditions.

4.2 PREPARATION

4.2.1 <u>Clean surfaces thoroughly prior to installation. Prepare surfaces using the methods recom-</u> mended by the manufacturer for achieving the best result for the substrate under the project <u>conditions.</u>

4.3 INSTALLATION - GENERAL

- 4.3.1 Install manufactured units in accordance with manufacturer's recommendations, approved submittals, and in proper relationship with adjacent construction.
- 4.3.2 <u>Clean exposed surfaces. Comply with manufacturer's written instructions for cleaning and</u> touchup of minor finish damage.

4.4 INSTALLATION OF ACOUSTIC ROOM COMPONENTS

- 4.4.1 <u>Install housings utilizing manufacturer's supplied brackets and fasteners recommended for</u> <u>application. Adjust upper and lower limits individually after installation.</u>
- 4.4.2 <u>Test electrically operated units to verify that motorized acoustical banner controls, limit</u> <u>switches, and other operating components perform in accordance with manufacturer's writ-</u> <u>ten requirements.</u>

4.5 INSTALLATION OF THEATER AND STAGE EQUIPMENT

- 4.5.1 <u>Install manufactured units in location indicated to verify components are complete and opera-</u> tional. Adjust equipment until satisfactory results are achieved.
- 4.5.2 <u>Acoustical Cloud Installation: Install auditorium acoustical cloud units plumb, level, and true, in accordance with manufacturer's recommendations and approved submittals. Suspend from overhead structure using specified installation accessories. Clean exposed surfaces of acoustical clouds. Comply with manufacturer's written instructions for cleaning and touchup of minor finish damage.</u>
- 4.5.3 Acoustical Shell Installation:
 - 4.5 Acoustical Shell Towers:
 - A. <u>Following assembly of all acoustical shell towers, use the transporter to place</u> <u>each acoustical shell tower in its proper playing position location on the stage</u>, as indicated in coordination with Owner's personnel.
 - B. <u>Verify that all shell tower components including access doors, door locks and tel-</u> escoping wing-stays are complete and operational.
 - C. <u>Strike shell tower units following approval of assembled acoustical shell and use</u> air or wheeled transporter to store in shell tower stacking location(s) indicated.

4.6 Acoustical Shell Ceiling Panels:

- A. <u>Suspend each row of acoustical ceiling panels from stage rigging using specified</u> <u>installation accessories, in accordance with manufacturer's recommendations</u> and approved submittals.
- B. Install acoustical shell ceiling panel units plumb, level, and true.
- C. Verify setting of units in performance and storage positions.
- D. Verify adjustability of units.
- E. Install, connect, address, commission and test integral lighting.
- 4.5.4 <u>Orchestra Shell Installation: Install orchestra shell components in accordance with manufac-</u> <u>turer's written instructions.</u>
 - 4.5Position all components accurately as indicated on Drawings and true, plumb, and level.
 - 4.6<u>Note any deviations required to adjust for field obstructions and report to required per</u> sons to incorporate changes into as-built drawings.
 - 4.7 Installation supervisor shall be a currently certified ETCP Rigger for Theatre.
 - 4.8 Utilize only qualified riggers for installation, trim, and adjustment.
 - 4.9 Clean and touch up all field welds and abraded paint finishes with matching materials.

4.6 INSTALLATION OF RIGGING SYSTEMS

- 4.6.1 Equipment shall be installed by fully trained superintendents and workmen. The Rigging Contractor shall employ Entertainment Technician Certification Program (ETCP) Certified theatre Riggers. Certified Riggers shall, at a minimum, be used as the project manager and site foreman and be responsible for the overall project including the layout, inspection, and onsite user training.
- 4.6.2 Equipment shall be installed per plans and specifications. Equipment shall be aligned, adjusted, and trimmed for the most efficient operation, the greatest safety and for the best visual appearance.
- 4.6.3 <u>Standards: Installation practices shall be in accordance with OSHA Safety and Health Standards and all local codes. All welding shall be performed in full compliance with the latest edition of the Structural Welding Code (ANSI/AWS D1.1).</u>
- 4.6.4 <u>Alignment: Mule blocks, cable rollers and guides shall be installed, as required, to provide</u> proper alignment, to maintain specified fleet angles, and to prevent contact with other surfaces.
- 4.6.5 Attachments: All equipment shall be securely attached to the building structure.

4.7 INSPECTION AND TESTING OF RIGGING SYSTEMS

- 4.7.1 <u>Inspection: During the installation of equipment the Rigging Contractor shall arrange for access as necessary for inspection of equipment by the Owner's representatives.</u>
- 4.7.2 <u>System Pre-Testing By Rigging Contractor: On completion of installation the Rigging Con-</u> <u>tractor shall conduct a complete test of the system to ensure it is working properly and in</u> <u>conformance with this specification.</u>
- 4.7.3 <u>Completion Testing: Upon completing the installation, the Rigging Contractor shall notify the</u> <u>Owner or Owner's Representative, who shall schedule inspection and testing of the full rig-</u> <u>ging system. At the time of testing, the Rigging Contractor shall furnish sufficient workers to</u> <u>operate all equipment and to perform such adjustments and tests as may be required by the</u> <u>Owner's representative. All testing equipment and personnel shall be at the Rigging Contrac-</u> <u>tor's expense. Any equipment, which fails to meet with approval, shall be repaired or re-</u> <u>placed with suitable equipment and the inspection shall be re-scheduled under the same</u>

conditions as previously specified. At the time of these inspections, no other work shall be performed in the auditorium and stage areas. All temporary bracing, scaffolding, etc. shall be removed to permit full operation of, and access to, all equipment. Final approval shall be withheld until all systems have been thoroughly tested and found to be in full working order and meets requirements herein.

4.5<u>Manual counterweight rigging shall be tested in accordance with ANSI E1.4 "Entertain-</u> ment Technology Manual Counterweight Rigging Systems".

- 4.6 Powered rigging shall be tested. Each hoist shall be operated over five full continuous cycles at 1.25 times its full working load at full speed and travel distance. The emergency stop function shall be tested at 100 percent WLL in both the ascending and descending directions.
 - A. <u>Demonstrate that all over travel limit switches have been correctly set for the ac-</u> tual field conditions of the specific project.
 - B. <u>If it applies to the project, demonstrate that all position encoders have been correctly set for the actual field conditions of the specific project.</u>
- 4.7 <u>Provide written recommendations to the Owner for necessary repairs or changes not in-</u> <u>cluded in the warranty. Provide a copy to the rigging equipment Manufacturer and in</u> <u>the Operations Manual.</u>
- 4.7.4 <u>The Owner or Owner's Representative shall witness and sign off on the inspection. A copy of</u> <u>the certificate shall be included in the permanent log turned over to the owner.</u>
- 4.7.5 Upon completion of the work, the Rigging Contractor shall submit 3 copies of a comprehensive Operating and Maintenance Manual including as-built shop drawings, equipment descriptions, and parts lists. The Rigging Contractor shall provide a safety and instruction class with personnel designated by the owner to demonstrate and explain the operation and maintenance of the systems.
- 4.7.6 <u>Signage with basic operating instructions and warnings shall be posted in the area where the equipment shall be operated. Signage shall be in conformance with ANSI-Z535.</u>

4.8 RIGGING SYSTEMS, FOLLOW-UP INSPECTION

- 4.8.1 <u>The Contractor shall return to site 12 months and 24 months after system turnover and pro-</u><u>vide the following services:</u>
 - 4.5<u>Inspection in accordance with ANSI E1.4-1 Entertainment Technology Manual Coun-</u> terweight Rigging Systems, ANSI E1.6-1 Entertainment Technology - Powered Hoist Systems, and ANSI E1.47 - Recommended Guidelines for Entertainment Rigging System Inspections.
 - 4.6 Make all required adjustments.
 - 4.7 Correct all warranty items and provide a written report to the Owner and Manufacturer.
 - 4.8 Provide written recommendations to the Owner and Manufacturer for necessary repairs or changes not included in the warranty.
 - 4.9 Conduct a rigging operation and safety class.
 - 4.10 <u>Subsequent to the 24 month inspection, provide a written proposal for the following year's inspection.</u>

4.9 FIELD QUALITY CONTROL

- 4.9.1 Inspect installed work to verify compliance with requirements.
 - 4.5<u>Verify that HVAC work and electrical work complies with manufacturer's submittals and</u> written installation requirements.
 - 4.6 Perform installation and startup checks as recommended by manufacturer.
 - 4.7 Prepare inspection reports and submit to Architect.

4.10 DEMONSTRATION

4.10.1 <u>Train Owner's personnel to adjust, operate, and maintain equipment. Turn over keys, tools,</u> and operation and maintenance instructions to Owner.

4.11 CLEANING AND PROTECTION

- 4.11.1 Repair or replace defective work as directed by Architect upon inspection.
- 4.11.2 <u>Clean surfaces. Touch up marred finishes or replace damaged components that cannot be</u> restored to factory-finished appearance. Use only materials and procedures recommended or furnished by manufacturer.
- 4.11.3 Protect installed products from damage, abuse, dust, dirt, stain, or paint until completion of project. Do not permit use during construction.

END OF APPENDIX 1

SECTION 31 31 16 - TERMITE CONTROL

PART 1 - GENERAL

1.1 <u>SUMMARY</u>

- A. <u>Section Includes:</u>
 - 1. Soil treatment with termiticide.
 - 2. <u>Wood treatment.</u>
 - 3. <u>Bait-station system.</u>
 - 4. <u>Metal mesh barrier system.</u>

1.2 ACTION SUBMITTALS

A. <u>Product Data: For each type of product.</u>
 1. <u>Include the EPA-Registered Label for termiticide products.</u>

1.3 INFORMATIONAL SUBMITTALS

- A. <u>Qualification Data: For gualified Installer.</u>
- B. <u>Product Certificates: For each type of termite control product.</u>
- C. <u>Soil Treatment Application Report: After application of termiticide is completed,</u> <u>submit report for Owner's records and include the following:</u>
 - 1. Date and time of application.
 - 2. <u>Moisture content of soil before application.</u>
 - 3. <u>Termiticide brand name and manufacturer.</u>
 - 4. <u>Quantity of undiluted termiticide used.</u>
 - 5. <u>Dilutions, methods, volumes used, and rates of application.</u>
 - 6. <u>Areas of application.</u>
 - 7. <u>Water source for application.</u>
- D. <u>Sample Warranties: For special warranties.</u>

1.4 QUALITY ASSURANCE

<u>Installer Qualifications: A specialist who is licensed according to regulations of authorities</u> having jurisdiction to apply termite control treatment and products in jurisdiction where <u>Project is located</u>.

- 1. Installer shall be licensed as a Pest Control Operator (PCO).
- B. <u>Regulatory Requirements: Formulate and apply termiticides according to the EPA-</u> <u>Registered Label.</u>

- C. <u>Standards for Application: Current edition of Georgia Department of Agriculture</u> regulations.
- D. FIELD CONDITIONS
- E. <u>Soil Treatment:</u>
 - 1. Environmental Limitations: To ensure penetration, do not treat soil that is water saturated or frozen. Do not treat soil while precipitation is occurring. Comply with requirements of the EPA-Registered Label and requirements of authorities having jurisdiction.
 - 2. <u>Related Work: Coordinate soil treatment application with excavating, filling,</u> <u>grading, and concreting operations. Treat soil under footings, grade beams,</u> and ground-supported slabs before construction.
 - 3. <u>Apply borate treatment after framing, sheathing, and exterior weather</u> protection is completed but before electrical and mechanical systems are installed.

1.5 WARRANTY

- A. <u>Soil Treatment Special Warranty: Manufacturer's standard form, signed by</u> <u>Applicator and Contractor, certifying that termite control work consisting of applied</u> <u>soil termiticide treatment will prevent infestation of subterranean</u> <u>termites, including Formosan termites (Coptotermes formosanus). If subterranean</u> <u>termite activity or damage is discovered during warranty period, re-treat soil and</u> <u>repair or replace damage caused by termite infestation.</u>
 - 1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. <u>Source Limitations: Obtain termite control products from single source from single manufacturer.</u>

2.2 SOIL TREATMENT

A. <u>Termiticide: EPA-Registered termiticide acceptable to authorities having</u> jurisdiction, in an aqueous solution formulated to prevent termite infestation.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. <u>Examine substrates, areas, and conditions, with Applicator present, for compliance</u> with requirements for moisture content of soil per termiticide label, interfaces with earthwork, slab and foundation work, landscaping, utility installation, and other conditions affecting performance of termite control.
- B. <u>Proceed with application only after unsatisfactory conditions have been corrected.</u>

3.2 **PREPARATION**

- A. <u>General: Prepare work areas according to the requirements of authorities having</u> jurisdiction and according to manufacturer's written instructions before beginning application and installation of termite control treatment(s). Remove extraneous sources of wood cellulose and other edible materials, such as wood debris, tree stumps and roots, stakes, formwork, and construction waste wood from soil within and around foundations.
- B. Soil Treatment Preparation: Remove foreign matter and impermeable soil materials that could decrease treatment effectiveness on areas to be treated. Loosen, rake, and level soil to be treated, except previously compacted areas under slabs and footings. Termiticides may be applied before placing compacted fill under slabs if recommended in writing by termiticide manufacturer.
 - 1. <u>Fit filling hose connected to water source at the site with a backflow</u> preventer, according to requirements of authorities having jurisdiction.

3.3 APPLYING SOIL TREATMENT

- A. <u>Application: Mix soil treatment termiticide solution to a uniform consistency.</u> <u>Distribute treatment uniformly. Apply treatment at the product's EPA-Registered</u> <u>Label volume and rate for maximum specified concentration of termiticide to the</u> <u>following so that a continuous horizontal and vertical termiticidal barrier or treated</u> <u>zone is established around and under building construction.</u>
 - 1. <u>Slabs-on-Grade and Basement Slabs: Under ground-supported slab</u> <u>construction, including footings, building slabs, and attached slabs as an</u> <u>overall treatment. Treat soil materials before concrete footings and slabs are</u> <u>placed.</u>
 - 2. Foundations: Soil adjacent to and along the entire inside perimeter of foundation walls; along both sides of interior partition walls; around plumbing pipes and electric conduit penetrating the slab; around interior column footers, piers, and chimney bases; and along the entire outside perimeter, from grade to bottom of footing.
 - 3. <u>Masonry: Treat voids.</u>
 - 4. <u>Penetrations: At expansion joints, control joints, and areas where slabs and below-grade walls will be penetrated.</u>

- B. <u>Post warning signs in areas of application.</u>
- C. <u>Reapply soil treatment solution to areas disturbed by subsequent excavation,</u> <u>grading, landscaping, or other construction activities following application.</u>

3.4 **PROTECTION**

- A. <u>Avoid disturbance of treated soil after application. Keep off treated areas until</u> <u>completely dry.</u>
- B. <u>Protect termiticide solution dispersed in treated soils and fills from being diluted by</u> <u>exposure to water spillage or weather until ground-supported slabs are installed.</u> <u>Use waterproof barrier according to EPA-Registered Label instructions.</u>

3.5 MAINTENANCE SERVICE

- A. <u>Maintenance Service: Beginning at Material Completion, maintenance service shall</u> <u>include 12 months' full maintenance by skilled employees of termite-control-</u> <u>treatment Installer. Include maintenance as required for proper performance</u> <u>according to the product's EPA-Registered Label and manufacturer's written</u> <u>instructions. Parts and supplies shall be manufacturer's authorized replacement</u> <u>parts and supplies.</u>
- B. <u>Continuing Maintenance Proposal: Provide from termite-control-treatment Installer</u> to Owner, in the form of a standard yearly (or other period) maintenance agreement, starting on date initial maintenance service is concluded. State services, obligations, conditions, and terms for agreement period and for future renewal options.
 - 1. <u>Include annual inspection for termite activity and effectiveness of termite</u> <u>treatment according to manufacturer's written instructions.</u>

END OF SECTION 31 31 16

SAVANNAH ARTS ACADEMY ADDITION & RENOVATION SAVANNAH CHATHAM COUNTY PUBLIC SCHOOL SYSTEM BOARD OF EDUCATION

SCHEDULE OF DRAWINGS:

LIST O	F DRAWINGS - DEMOLITION	LIST OF	DRAWINGS -LIGH
D2.01	DEMOLITION - FIRST FLOOR PLAN	11.01	LIGHTING DEMO PL
D2.02	DEMOLITION - SECOND FLOOR PLAN	11 02	
D2.03	DEMOLITION - THIRD FLOOR PLAN	11.03	
D2.11	DEMOLITION - ENLARGED PLANS	L1.04	
D5.01	DEMOLITION ELEVATIONS - AUDITORIUM		
LIST O	F DRAWINGS - PLUMBING DEMOLITION	LIST OF	DRAWINGS - ARCH
DP1.01	DEMOLITION PLUMBING FIRST FLOOR PLAN	A0.01	GEN. PROJECT
DP1.02	DEMOLITION PLUMBING SECOND FLOOR PLAN	A0.02	CODES AND NO
DP1.03	DEMOLITION PLUMBING THIRD FLOOR PLAN	A0.03	INTERIOR CON
		A2.01	COMPOSITE FI
		A2.02	COMPOSITE SE
	F DRAWINGS - MECHANICAL DEMOLITION	A2.03	COMPOSITE TH
		A4.01	ENLARGED PLA
DM1.01	DEMOLITION MECHANICAL FIRST FLOOR - NE	A4.02	ENLARGED PLA
DM1.02	DEMOLITION MECHANICAL FIRST FLOOR - NW	A5.01	INTERIOR ELEV
DM1.03	DEMOLITION MECHANICAL FIRST FLOOR - SE	A5.02	INTERIOR ELEV
DM1.04	DEMOLITION MECHANICAL FIRST FLOOR - SW	A5.03	INTERIOR ELEV
	DEMOLITION MECHANICAL SECOND FLOOR - NE	A6.01	COMPOSITE FI
DM1.12	DEMOLITION MECHANICAL SECOND FLOOR - NW	A6.02	COMPOSITE SE
	DEMOLITION MECHANICAL SECOND FLOOR - SE	A6.03	COMPOSITE TH
	DEMOLITION MECHANICAL THIDD FLOOP NE	A6.04	AUDITORIUM R
	DEMOLITION MECHANICAL THIRD FLOOP NW	A8.01	DOOR SCHEDU
DM1.22	DEMOLITION MECHANICAL THIRD FLOOR - NW	A8.02	STOREFRONT,
	DEMOLITION MECHANICAL THIRD FLOOR - SE	A9.01	FINISH SCHEDU
	DEMOLITION MECHANICAL PLAN MECHANICAL DOOM	A9.02	INTERIOR DET
DM1.28	DEMOLITION MECHANICAL PLAN - MECHANICAL ROOM DEMOLITION MECHANICAL PLAN - ROOF PLAN	A9.03	CASEWORK SEC
	E DRAWINGS - ELECTRICAL DEMOLITION		
		LIST OF	DRAWINGS - PLUM
DE2.01	POWER DEMO PLAN - FIRST FLOOR	D0 01	
DE2.02	POWER DEMO PLAN - SECOND FLOOR	PU.UI D1 01	
DE2.03	POWER DEMO PLAN - THIRD FLOOR	P 1.01 D1 02	
		Γ1.UZ D1 Λ2	
		Γ1.03 D1 ΩΔ	
DE3.02		Γ Δ.UI	
DE2.02	LLLC JIJIEMIJ VEMIO PLAIN - I MIKU FLOUK		

DE3.04 ELEC SYSTEMS DEMO PLAN - MECHANICAL ROOM

SAVANNAH, GEORGIA 31405

ARCH. PROJECT NO. 1916 BID NO. C22-01

ARCHITECTS: CIVIL ENGINEERS: LANDSCAPE ARCHITECT: STRUCTURAL ENGINEER: M.E.P.F. ENGINEER: FOOD SERVICE CONSULTING: ACOUSTICS / A/V:

COGDELL & MENDRALA ARCHITECTS, PC MAXWELL-REDDICK & ASSOCIATES, INC. MANDEL DESIGN, LLC **SAUSSY ENGINEERING DULOHERY WEEKS, INC. CAMACHO ASSOCIATES JAMES BRAWLEY & ASSOCIATES**



GMP CONSTRUCTION DOCUMENTS VOLUME I - SAVANNAH ARTS ACADEMY RENOVATION

OF DRAWINGS -LIGHTING DEMOLITION	LIST O	F DRAWINGS - MECHANICAL	LIST OF DR
LIGHTING DEMO PLAN - FIRST FLOOR	M0.01	MECHANICAL LEGEND & SCHEDULES	L0.01 LI
LIGHTING DEMO PLAN - SECOND FLOOR	M0.02	MECHANICAL SCHEDULES	L2.01 LI
LIGHTING DEMO PLAN - THIRD FLOOR	M1.01	MECHANICAL FIRST FLOOR - NE	L2.02 LI
LIGHTING DEMO PLAN - MECHANICAL ROOM	M1.02	MECHANICAL FIRST FLOOR - NW	L2.03 LI
	M1.03	MECHANICAL FIRST FLOOR - SE	L2.04 LI
	M1.04	MECHANICAL FIRST FLOOR - SW	
OF DRAWINGS - ARCHITECTURAL	M1.11	MECHANICAL SECOND FLOOR - NE	LIST OF DR
	M1.12	MECHANICAL SECOND FLOOR - NW	EDCOL
GEN. PROJECT NOTES, GRAPHIC STMBOLS & ADDREVIATIONS	M1.13	MECHANICAL SECOND FLOOR - SE	EPSUL EDS1 1
	M1.14	MECHANICAL SECOND FLOOR - SW	EPS1.1 EDS1.2
	M1.21	MECHANICAL THIRD FLOOR - NE	EFSI.2 FDS1-3
	M1.22	MECHANICAL THIRD FLOOR - NW	
	M1.23	MECHANICAL THIRD FLOOR - SE	EPS1.7
	M1.24	MECHANICAL THIRD FLOOR - SW	EPS1.5
	M1.25	MECHANICAL PLAN - MECHANICAL ROOM	EP31.0 ED\$2.1
	M1.26	MECHANICAL PLAN - ROOF PLAN	
	M3.01	MECHANICAL DETAILS	
	M3.02	MECHANICAL DETAILS	
	M3.03	CONTROL SCHEMATICS	
COMPOSITE FIRST FLOOR REFLECTED CEILING PLAN			
COMPOSITE SECOND FLOOR REFLECTED CEILING PLAN			
AUDITORIUM DEELECTED CEILING PLAN	LIST O	F DRAWINGS - ELECTRICAL	EP33.2 EDS4 1
AUDITORIUM REFLECTED CEILING PLANS	E0.01	ELECTRICAL LEGEND	
STOREEDONT HOLLOW METAL AND EXTEDIOD DETAILS	E2.01	POWER PLAN - FIRST FLOOR	
STOREFRONT, HOLLOW METAL, AND EXTERIOR DETAILS	E2.02	POWER PLAN - SECOND FLOOR	
	E2.03	POWER PLAN - THIRD FLOOR	
	E2.04	POWER PLAN - MECHANICAL ROOM	EP34.3 EDS4.6
CASEWORK SECTIONS	E2.05	POWER PLAN - ROOF LEVEL	EP34.0 EDS4 7
	E2.06	POWER PLAN - AUDITORIUM	EP34.7
	E3.01	FIRE ALARM PLAN - FIRST FLOOR	
	E3.02	FIRE ALARM PLAN - SECOND FLOOR	
OF DRAWINGS - PLUMBING	E3.03	FIRE ALARM PLAN - THIRD FLOOR	→ PS1.1
PLUMBING LEGEND & SCHEDULES	E3.04	FIRE ALARM PLAN - MECHANICAL ROOM	PS1.2
PLUMBING FIRST FLOOR PLAN	E4.01	INTERCOM PLAN - FIRST FLOOR	PS1.3
PLUMBING SECOND FLOOR PLAN	E4.02	INTERCOM PLAN - SECOND FLOOR	(PS1.4
PLUMBING THIRD FLOOR PLAN	E4.03	INTERCOM PLAN - THIRD FLOOR	> PS1.5
PLUMBING PLAN - MECHANICAL ROOM	E5.01	SECURITY SYSTEM PLAN - FIRST FLOOR	> PS1.6
PLUMBING DETAILS	E6.01	ELECTRICAL SCHEDULES	PS1.7
	E6.02	ELECTRICAL DETAILS	PS1.8
	E6.03	ELECTRICAL DETAILS	

FIRE MARSHAL CERTIFICATION:

SIGNED:

THE LOCAL FIRE OFFICIAL HAVING JURISDICTION HAS REVIEWED AND APPROVED A SE OCUMENTS IDENTICAL TO THIS SET OF DOCUMENTS ON A CONSTRUCTION PERMIT WILL BE ISSUED TO THE CONTRACTOR AT THE START OF CONSTRUCTION.

DESIGN PROFESSIONAL

LOCATION MAP:

AWINGS - LIGHTING GHT FIXTURE SCHEDULE GHTING PLAN - FIRST FLOOR GHTING PLAN - SECOND FLOOR GHTING PLAN - THIRD FLOOR GHTING PLAN - MECHANICAL ROOM AWINGS - EPS LEGEND 1ST FLOOR AV PLAN 1ST FLOOR ACOUSTIC SYSTEM PLAN 1ST FLOOR LIGHTING PLAN 2ND FLOOR LIGHTING PLAN **3RD FLOOR AV PLAN 3RD FLOOR ACOUSTIC SYSTEM PLAN** 1ST FLOOR AV RCP 1ST FLOOR ACOUSTIC SYSTEM RCP 3RD FLOOR RCP LIGHTING RCP CURTAIN LAYOUT AUDITORIUM SECTION MOTORIZED HOIST RCP PRODUCTION PANEL DETAILS FACE PLATE DETAILS SPEAKER DETAILS EQUIPMENT RACK DETAILS HOIST DETAILS LIGHTING DETAILS VIDEO DETAILS AWINGS - PS AUDIO FLOW DIAGRAM AUDIO FLOW DIAGRAM (CONT.) AUDIO FLOW DIAGRAM (CONT.) AUDIO FLOW DIAGRAM (CONT.) VIDEO FLOW DIAGRAM CONTROL FLOW DIAGRAM LIGHTING FLOW DIAGRAM POWER FLOW DIAGRAM



SET NO. 1 - ISSUED FOR PERMIT/GMP ADDENDUM NO. 1 - 3/14/2022





		A8.01	3/8" = 1'-0"	· ···· · / / /		-	A8.01	3/8" = 1'-0"	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		A8.01
		HM 2	HOLLOV	V METAL	. FRAME		HM 4	HOLLOV	V METAL F	RAME	WF
+/- 51 1" WID TRANS 51 10 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -	A8.01	3/8" = 1'-0					A8.01	3/8" = 1'-0	" 6'-0" ILG-1	PEPLACE GLAZING	7:-0"V.I.F.
PTION	SF03	2/8" = 11.0	ROL ROO	OM 1ST F	LOOR		SF04	1 STOR	EFRONT A	T LOBBY	
	4'-0"+/- 3'-11"+/- EXIST. EXIST.	EQ LG-	9'-9 EXI 1 L(" +/- ST. Q G-1	3 A8.02 EQ LG-1		6 A8.02	5 A8.02 EQ. TFG LG-2		EQ. TFG LG-2	A:-0, 3:-10, MIX
(Not Rated) HM2 (Not Rated) HM2	Exist. HM Exist. HM Hollow Metal Hollow Metal	Painted Painted	 9/A8.02 9/A8.02	 8/A8.02 8/A8.02	12/A8.02 12/A8.02 	2					
(Not Rated) SF05 (Not Rated) SF04 None HM4	Aluminum Aluminum Exist. HM	Anodized Anodized Painted Painted	SEE ELEVATIONS SEE ELEVATIONS	SEE ELEVATIONS SEE ELEVATIONS	SEE ELEVATIONS SEE ELEVATIONS	2 1,5					
(Not Rated) SF04	Aluminum	Painted Painted Anodized	 SEE ELEVATIONS	 SEE ELEVATIONS	 SEE ELEVATIONS	2 2					

	FRAME						
LABEL	TYPE	MATERIAL	FINISH	HEAD DETAIL	JAMB DETAIL	SILL DETAIL	REMARKS
(Not Rated)	HM1	Hollow Metal	Painted	10/A8.02 SIM	10/A8.02	13 & 14/A8.02	
(Not Rated)	HM1	Hollow Metal	Painted	10/A8.02 SIM	10/A8.02	13 & 14/A8.02	
(Not Rated)	HM1	Hollow Metal	Painted	10/A8.02 SIM	10/A8.02	13 & 14/A8.02	
(Not Rated)	SF02	Aluminum	Anodized	SEE ELEVATIONS	SEE ELEVATIONS	SEE ELEVATIONS	
(Not Rated)	WF-2	Wood	Painted	11/A8.02 SIM	12/A8.02		
(Not Rated)	WF	Wood	Painted	15/A8.02 SIM	15/A8.02		4
· · · · ·	WF	Wood	Painted	15/A8.02 SIM	15/A8.02		3,5
	WF	Wood	Painted	15/A8.02 SIM	15/A8.02		4
			Painted		_		2
			Painted				2
			Painted				2
(Not Rated)	SF04	Aluminum	Anodized	SEE ELEVATIONS	SEE ELEVATIONS	SEE ELEVATIONS	
(Not Rated)	SF05	Aluminum	Anodized	SEE ELEVATIONS	SEE ELEVATIONS	SEE ELEVATIONS	
(Not Rated)	SF04	Aluminum	Anodized	SEE ELEVATIONS	SEE ELEVATIONS	SEE ELEVATIONS	
			Painted				2
None	HM4	Exist. HM	Painted				1,5
		Exist. HM				12/A8.02	2
		Exist. HM				12/A8.02	2
(Not Rated)	HM2	Hollow Metal	Painted	9/A8.02	8/A8.02		
(Not Rated)	HM2	Hollow Metal	Painted	9/A8.02	8/A8.02		

GENERAL: DIMENSIONS GIVEN FOR EXISTING DOORS ARE APPOXIMATE. FIELD VERIFY DIMENSIONS OF EXISTING DOORS. 1. EXISTING HM DOORS AND FRAME TO REMAIN, GLAZING TO BE REPLACED. MODIFY FRAME AS REQUIRED TO RECIEVE INSULATING GLASS 2. INSTALL/REPLACE HARDWARE AS INDICATED.

3. REINSTALL EXISTING DOOR IN SCHEDULED FRAME 4. MATCH HEIGHT DIMENSION OF EXISTING DOOR 102D 5. REPLACE EXISTING GLAZING, FIELD VERIFY SIZE OF GLAZING

REMARKS:















NOTES:

- . PROVIDE NEW 200KW / 250KVA NATURAL GAS FIRED GENERATOR WITH WEATHERPROOF ENCLOSURE. SEE PARTIAL EMERGENCY SYSTEMS RISER DIAGRAM, 2/E2.04 FOR MORE INFORMATION.
- PROVIDE NEW FEEDER, DISCONNECT SWITCH, AND CIRCUIT BREAKER SIZED IN ACCORDANCE WITH THE MECHANICAL EQUIPMENT CONNECTION SCHEDULE. PROVIDE SHUNT TRIP TYPE CIRCUIT BREAKER.
- PROVIDE NEW DISCONNECT SWITCH AND FINAL CONNECTION TO UNIT IN ACCORDANCE WITH THE MECHANICAL EQUIPMENT CONNECTION SCHEDULE.
- PROVIDE POST MOUNTED 30A/120V TWIST LOCK RECEPTACLE IN WEATHERPROOF ENCLOSURE WITH 2#10, #10G, 1/2"C AWG. ROUTE TO NEW 30A/1P GFCI CIRCUIT BREAKER. COORDINATE EXACT LOCATION WITH EQUIPMENT BEING INSTALLED.
- 5. RECONNECT POWER SUPPLY TO NEW FIRE PUMP AND JOCKEY PUMP.
- . NEW 150A, 4 POLE AUTOMATIC TRANSFER SWITCH. PROVIDE NORMAL POWER SOURCE FROM NEW 150A/3P CIRCUIT BREAKER IN SWBD#2. . NEW DISTRIBUTION PANELBOARD TO SERVE NON-LIFE SAFETY LOADS. EXTEND EXISTING 30A FEEDER FROM PANEL HEQ TO NEW 30A/3P CIRCUIT BREAKER IN
- HEQDP. 8. NEW DISTRIBUTION PANELBOARD TO SERVE LIFE SAFETY LOADS.
- 9. PROVIDE ELECTRICAL CONNECTION TO NEW HEAT TRACE. CONNECT TO EXISTING 120 VOLT, 20 AMP BRANCH CIRCUIT PREVIOUSLY SUPPLYING HEAT TRACE TO COOLING TOWER.









- 1. (GENERAL) PROVIDE PROTECTIVE POLYCARBONATE COVERS EQUAL TO STI STOPPER SERIES FOR ALL PULL STATIONS.
- 2. PROVIDE NEW MONITOR MODULES AND CONTROL MODULES FOR ALL EXISTING FLOW AND TAMPER SWITCHES. COORDINATE EXACT REQUIREMENTS AND QUANTITIES WITH EXISTING FIRE SPRINKLER EQUIPMENT.
- 3. (GENERAL) WHERE NEW DEVICES ARE TO REPLACE EXISTING DEVICES ENSURE CODE REQUIRED MOUNTING HEIGHTS ARE MET. IN CASES WHERE MOUNTING HEIGHTS ARE NOT MET, ADJUST NEW DEVICE TO REQUIRED MOUNTING HEIGHT.







<u>GENERAL NOTES:</u>

1. WHERE LIGHT FIXTURES ARE SHOWN , RECONNECT FIXTURES AND ASSOCIATED CONTROL DEVICES TO EXISTING BRANCH CIRCUITRY.











A-A-A-A-A-A-A-A-A-A-A-A-A-A-A-A-A-A-A-	A 1A 1A 1A 1A 1A 1A 1A 1A 1							– CY
		www.	AAAAA MOTOR 9				-18-	- RE
								- 3RI
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							- <u>6</u> - <u>23</u> -	- SC - AC
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			MOTOR 3				- <u><22</u> }- - <u>√13</u> }-	- AC(- 2N
UN U				WWWWWWW			-(14)	- 2NI
			MOTOR 2			···· -		- 1ST
	KARKA		MOTOR 1					- AC - 1ST
				~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	$\sim$		- <u>12</u> - <u>1</u> -	- 1ST - PR
			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~					- GR - VA
])								

	SHEET KEY NOTES
	1. PROJECTION SCREEN 2. WALL MOUNTED PROJECTOR 3. 1ST LIGHTING MOTORIZED HOIST: MAX WORKING LOAD LIMIT OF 1000LBS. MAX WEIGHT OF MOVING PARTS 1000 LBS. MAX WEIGHT OF FIXED PARTS 500 LBS. DYNAMIC LOAD OF 1.2 C
	4. 2ND LIGHTING MOTORIZED HOIST: MAX WORKING LOAD LIMIT OF 1000LBS. MAX WEIGHT OF MOVING PARTS 1000 LBS. MAX WEIGHT OF FIXED PARTS 500 LBS.
	DYNAMIC LOAD OF 1.2 G. 5. 3RD LIGHTING ELECTRIC (DEAD-HUNG) ON I-TRUSS
	 6. 1ST SCENERY MOTORIZED HOIST: MAX WORKING LOAD LIMIT OF 1000LBS. MAX WEIGHT OF MOVING PARTS 1000 LBS. MAX WEIGHT OF FIXED PARTS 500 LBS. DYNAMIC LOAD OF 1.2 G. 7. 2ND SCENERY MOTORIZED HOIST: MAX WORKING LOAD LIMIT OF 1000LBS.
	MAX WEIGHT OF MOVING PARTS 1000 LBS. MAX WEIGHT OF FIXED PARTS 500 LBS. DYNAMIC LOAD OF 1.2 G. 8. N/A.
AR TRAVELER	9. GRAND VALANCE CURTAIN - 1 PANEL MEASURING 50' W X 8'H-MOUNT ON PROSCENIUM WALL.
RIM/SCENERY 2 H BORDER	10. GRAND DRAPE CURTAINS - 2 PANELS, EACH MEASURING 28' W X 18'H - MOUNTED ON CURTAIN TRACK
D LEGS RIM/SCENERY 1 OUSTIC SYSTEM LOUDSPEAKER	11. 1ST SET OF LEG CURTAINS MOTORIZED HOIST - 2 PANELS, EACH MEASURING 8' W X 19' H - MOUNTED ON I-TRUSS
) BORDER) TRAVELER	12. 1ST BORDER CURTAIN - 1 PANEL MEASURING 54' W X 5'H - MOUNTED ON I-TRUSS 13. 2ND SET OF LEG CURTAINS MOTORIZED
	HOIST - 2 PANELS, EACH MEASURING 8' W X 19' H - MOUNTED ON I-TRUSS 14. 2ND BORDER CURTAIN - 1 PANEL
D LEGS D BORDER	15. MID-STAGE TRAVELER CURTAINS MOTORIZED HOIST- 2 PANELS, EACH
LEGS OUSTIC SYSTEM LOUDSPEAKER	MEASURING 28' W X 19'H - MOUNTED ON CURTAIN TRACK 16. 3RD BORDER CURTAIN - 1 PANEL MEASURING 54' W X 5'H - MOUNTED ON
BORDER DJECTION SCREEN	I-TRUSS 17. 3RD SET OF LEG CURTAINS MOTORIZED HOIST - 2 PANELS, EACH MEASURING 8' W
	18. REAR DRAPE CURTAINS MOTORIZED HOIST- 2 PANELS, EACH MEASURING 28' W X 19'H - MOUNTED ON CURTAIN TRACK
	19. CYCLORAMA CURTAIN MOTORIZED HOIST - 1 PANEL MEASURING 54' W X 19'H - MOUNTED ON I-TRUSS
	20. 4TH BORDER CURTAIN - 1 PANEL MEASURING 54' W X 5'H - MOUNTED ON I-TRUSS 21. 1ST ROW OF ACOUSTIC SYSTEM
	22. 2ND ROW OF ACOUSTIC SYSTEM
	23. 3RD ROW OF ACOUSTIC SYSTEM LOUDSPEAKERS ON DEAD HUNG I-TRUSS
	24. PROJECTION SCREEN
	25. CURTAIN MOTOR ON CURTAIN TRACK. 1 20A AC POWER. CONTROL LINE TO ER 2.1





SHEET KEY NOTES 🐼 I. PROJECTION SCREEN WALL MOUNTED PROJECTOR 1ST LIGHTING MOTORIZED HOIST: MAX WORKING LOAD LIMIT OF 1000LBS. MAX WEIGHT OF MOVING PARTS 1000 LBS. MAX WEIGHT OF FIXED PARTS 500 LBS. DYNAMIC LOAD OF 1.2 G. 4. 2ND LIGHTING MOTORIZED HOIST: MAX WORKING LOAD LIMIT OF 1000LBS. MAX WEIGHT OF MOVING PARTS 1000 LBS. MAX WEIGHT OF FIXED PARTS 500 LBS. DYNAMIC LOAD OF 1.2 G. 3RD LIGHTING ELECTRIC (DEAD-HUNG) ON I-TRUSS 1ST SCENERY MOTORIZED HOIST: MAX WORKING LOAD LIMIT OF 1000LBS. MAX WEIGHT OF MOVING PARTS 1000 LBS MAX WEIGHT OF FIXED PARTS 500 LBS. DYNAMIC LOAD OF 1.2 G. 2ND SCENERY MOTORIZED HOIST: MAX WORKING LOAD LIMIT OF 1000LBS. MAX WEIGHT OF MOVING PARTS 1000 LBS MAX WEIGHT OF FIXED PARTS 500 LBS. DYNAMIC LOAD OF 1.2 G. N/A. GRAND VALANCE CURTAIN - 1 PANEL MEASURING 50' W X 8'H-MOUNT ON PROSCENIUM WALL. 10. GRAND DRAPE CURTAINS - 2 PANELS, EACH MEASURING 28' W X 18'H -MOUNTED ON CURTAIN TRACK 11. 1ST SET OF LEG CURTAINS MOTORIZED HOIST - 2 PANELS, EACH MEASURING 8' W X 19' H - MOUNTED ON I-TRUSS 12. 1ST BORDER CURTAIN - 1 PANEL MEASURING 54' W X 5'H - MOUNTED ON I-TRUSS 13. 2ND SET OF LEG CURTAINS MOTORIZED HOIST - 2 PANELS, EACH MEASURING 8' W X 19' H - MOUNTED ON I-TRUSS 14. 2ND BORDER CURTAIN - 1 PANEL MEASURING 54' W X 5'H- MOUNTED ON I-TRUSS 15. MID-STAGE TRAVELER CURTAINS MOTORIZED HOIST- 2 PANELS, EACH MEASURING 28' W X 19'H - MOUNTED ON CURTAIN TRACK 16. 3RD BORDER CURTAIN - 1 PANEL MEASURING 54' W X 5'H - MOUNTED ON I-TRUSS 17. 3RD SET OF LEG CURTAINS MOTORIZED HOIST - 2 PANELS, EACH MEASURING 8' W X 19'H - MOUNTED ON I-TRUSS 18. REAR DRAPE CURTAINS MOTORIZED HOIST- 2 PANELS, EACH MEASURING 28' W X 19'H - MOUNTED ON CURTAIN TRACK 19. CYCLORAMA CURTAIN MOTORIZED HOIST - 1 PANEL MEASURING 54' W X 19'H -MOUNTED ON I-TRUSS 20. 4TH BORDER CURTAIN - 1 PANEL MEASURING 54' W X 5'H - MOUNTED ON I-TRUSS 21. 1ST ROW OF ACOUSTIC SYSTEM LOUDSPEAKERS ON DEAD HUNG I-TRUSS 22. 2ND ROW OF ACOUSTIC SYSTEM LOUDSPEAKERS ON DEAD HUNG I-TRUSS 23. 3RD ROW OF ACOUSTIC SYSTEM LOUDSPEAKERS ON DEAD HUNG I-TRUSS



	MIC 1		3.m XLR.3.f $>$	MIC 1 DA	NTE	RJ45.m		ER2.1 - ST.
XLR.3.f	MIC 2		3.m XLR.3.f >	MIC 2		l		- 1
$XLR.3.f \rightarrow$	- MIC 3 - MIC 4		3.m XLR.3.f≻ 3.m XIR.3.f≻	+ MIC 3 + MIC 4	1	I ├── XLR.3.m	_	3
XLR.3.f			3.m XLR.3.f >	- MIC 5	2	XLR.3.m	-	- 4
XLR.3.f	- MIC 6		3.m XLR.3.f >	MIC 6	3	XLR.3.m	-	- 5
XLR.3.f >	- MIC 7 - MIC 8		3.m XLR.3.f> 3.m XLR.3.f>	MIC 7 MIC 8	4		-	7 DANTE
/			/				-	- 8 9 EF
MOUNT	IN EXISTING SR WAL			YAMAHA RIO 1608 -D2 # DIGITAL STAGEE	#1 BOX			
XLR.3.f >	- MIC 9 - MIC 10		3.m XLR.3.f 〉 3.m XLR.3.f 〉	- MIC 9 - MIC10				
XLR.3.f	- MIC 11		3.m XLR.3.f >-	- MIC 11	5	S → XLR.3.m		PORT COUNT A
XLR.3.f >	MIC 12 MIC 13 18 PP1.2		3.m XLR.3.f >	- MIC 12 - MIC 13	7			NETG
XLR.3.f	MIC 14		3.m XLR.3.f >-	MIC 14	ð			AUDIO
XLR.3.f	- MIC 16		3.m XLR.3.f >	- MIC 16			XX - XX -	1
							XX - XX -	- 3
							XX -	- 5
XLR.3.f	MIC 17		3.m XLR.3.f	MIC 1 DA	NTE	-RJ45.m	XX - XX -	7 NETWORI
лык.3.f)	- MIC 19		5.m XLR.3.f≯ 3.m XLR.3.f≻	- MIC 2 - MIC 3			XX -	- 8 9 EF
XLR.3.f	MIC 20		3.m XLR.3.f >					
XLR.3.f	MIC 21 18 PP1.3		3.m XLR.3.f	- MIC RIO 1608 -D2 #	#2 3∩¥			
XLR.3.f >	- MIC 22		3.m XLR.3.f≻ 3.m XIR3.f≻					
XLR.3.f >	MIC 24		3.m XLR.3.f >	MIC 8				PORT COUNT AS
			•					
лык. з.т /- XLR.3f /-		SOLDER				XL	.R.3.m χ	
XLR.3.f >	MIC-26 I/O PLATE 7 FB1.1	-SOLDER	<				R.3.m X	
						XL	R.3.m χ	LR.3.f MIC 11
	DOWN STAGE FLR					XL XL	R.3.m χ .R.3.m χ	LR.3.f → MIC 13
XLR.3.f >	MIC A	-SOLDER			1 PS-1.{	5 XL	.R.3.m χ	LR.3.f - MIC 15
XLR.3f		-SOLDER			2	≍< ×∟	.R.3.m χ	LR.3.f - MIC 16
XLR.3.f >	MIC-28 7 FB1.2	-SOLDER			<u>PS-1.</u>	5		
								RI
DOWNS	DOWN STAGE FLR							DIGI
	MIC 20		·					
XLR.3.f >	- MIC-29 - MIC-30	-SOLDER	·					
XLR.3.f >-	- MIC-29 MIC-30 I/O PLATE 4 PP1 4		·					
XLR.3.f >	- MIC-29 MIC-30 I/O PLATE 4 PP1.4	-SOLDER						
XLR.3.f)	MIC-29 MIC-30 I/O PLATE 4 PP1.4 DANTE PIT	-SOLDER	DANTE					
XLR.3.f >	MIC-29 MIC-30 I/O PLATE 4 PP1.4 DANTE PIT MOUNT ON FRONT OF	-SOLDER	DANTE 1					
XLR.3.f >	MIC-29 MIC-30 I/O PLATE 4 PP1.4 DANTE MOUNT ON FRONT OF MIC 49 DANTE	-SOLDER -SOLDER -SOLDER -RJ45.m THRUST -RJ45.m		PATCH TO PP.x × PLATE	AS REC	Ω'		
XLR.3.f >	MIC-29 MIC-30 PIT MOUNT ON FRONT OF MIC 49 MIC 50 MIC 50	-SOLDER -SOLDER -SOLDER -RJ45.m THRUST 	DANTE 1 DANTE DANTE X	PATCH TO PP.x x PLATE	AS REC	2'		
XLR.3.f >	MIC-29 MIC-30 I/O PLATE 4 PP1.4 DANTE MOUNT ON FRONT OF MIC 49 MIC 50 MIC 51	-SOLDER -SOLDER -SOLDER -RJ45.m THRUST 		PATCH TO PP.x × PLATE	AS REC	Ω'		
$\begin{array}{c} \text{XLR.3.f} \\ \text{XLR.3.f} \\ \end{array}$ $\begin{array}{c} \text{WALL } \text{M} \\ \text{XLR.3.f} \\ \text{XLR.3.f} \\ \text{XLR.3.f} \\ \text{XLR.3.f} \\ \text{XLR.3.f} \\ \end{array}$ $\begin{array}{c} \text{XLR.3.f} \\ \text{XLR.3.f} \\ \end{array}$	MIC-29 MIC-30 I/O PLATE 4 PP1.4 DANTE PIT MOUNT ON FRONT OF MIC 49 MIC 49 MIC 50 MIC 51 MIC 52 MIC 53	-SOLDER -SOLDER -SOLDER -RJ45.m THRUST -RJ45.m - RJ45.m 1 - XLR.3.m 2 - XLR.3.m	DANTE 1 DANTE T	PATCH TO PP.x x PLATE	AS REC	2'		
XLR.3.f >	MIC-29 MIC-30 I/O PLATE 4 PP1.4 DANTE PIT MOUNT ON FRONT OF MIC 49 MIC 49 MIC 50 MIC 51 MIC 52 MIC 53 MIC 54		DANTE 1 DANTE DANTE X	PATCH TO PP.x x PLATE	AS REC	ג'		
XLR.3.f >	MIC-29 MIC-30 I/O PLATE 4 PP1.4 DANTE PIT MOUNT ON FRONT OF MIC 49 MIC 50 MIC 51 MIC 52 MIC 53 MIC 54 MIC 55		DANTE 1 DANTE DANTE X	PATCH TO PP.x,x PLATE	AS REC	2'		
XLR.3.f XLR.3.f XLR.3.f XLR.3.f XLR.3.f XLR.3.f XLR.3.f XLR.3.f XLR.3.f XLR.3.f XLR.3.f XLR.3.f XLR.3.f XLR.3.f XLR.3.f XLR.3.f XLR.3.f	MIC-29 MIC-30 MIC-30 PIT DANTE PIT MOUNT ON FRONT OF MIC 49 MIC 49 MIC 50 MIC 51 MIC 52 MIC 53 MIC 54 MIC 55 MIC 55 MIC 56		DANTE 1 DANTE T	PATCH TO PP.x x PLATE	AS REC	אַי		
XLR.3.f XLR.3.f XLR.3.f XLR.3.f XLR.3.f XLR.3.f XLR.3.f XLR.3.f XLR.3.f XLR.3.f XLR.3.f XLR.3.f XLR.3.f XLR.3.f	MIC-29 MIC-30 I/O PLATE 4 PP1.4 DANTE PIT MOUNT ON FRONT OF MIC 49 MIC 50 MIC 51 MIC 52 MIC 53 MIC 54 MIC 55 MIC 55 MIC 56 YAMAHA RIO 1608 -D2 #3 DIGITAL STACE POX	SOLDER SOLDER SOLDER -RJ45.m THRUST 1 < XLR.3.m 3 < XLR.3.m 4 < XLR.3.m		PATCH TO PP.x x PLATE	AS REC	Σ,		
XLR.3.f >- XLR.3.f >- XLR.3.f > XLR.3.f > XLR.3.f > XLR.3.f > XLR.3.f > XLR.3.f > XLR.3.f > XLR.3.f > XLR.3.f > XLR.3.f >	MIC-29 MIC-30 I/O PLATE 4 PP1.4 DANTE PIT MOUNT ON FRONT OF MIC 49 MIC 49 MIC 50 MIC 51 MIC 52 MIC 53 MIC 53 MIC 54 MIC 55 MIC 55 MIC 56 YAMAHA RIO 1608 -D2 #3 DIGITAL STAGEBO> MIC 57			PATCH TO PP.x x PLATE	AS REC	ζ'		
XLR.3.f XLR.5 XLR.5 X XLR.5 X XLR.5 X	MIC-29 MIC-30 I/O PLATE 4 PP1.4 DANTE PIT MOUNT ON FRONT OF MIC 49 MIC 49 MIC 50 MIC 51 MIC 52 MIC 53 MIC 54 MIC 55 MIC 55 MIC 55 MIC 56 YAMAHA RIO 1608 -D2 #3 DIGITAL STAGEBOX MIC 57 MIC 58	-SOLDER -SOLDER -RJ45.m THRUST -RJ45.m 1 XLR.3.m 2 XLR.3.m 3 XLR.3.m 4 XLR.3.m 4 XLR.3.m			AS REC	ς'		
XLR.3.f XLR.5 XLR.5 X XLR.5	MIC-29 MIC-30 I/O PLATE 4 PP1.4 DANTE PIT MOUNT ON FRONT OF MIC 49 MIC 50 MIC 51 MIC 52 MIC 53 MIC 54 MIC 55 MIC 55 MIC 56 YAMAHA RIO 1608 -D2 #3 DIGITAL STAGEBO> MIC 57 MIC 58 MIC 59 MIC 60	SOLDER SOLDER SOLDER -RJ45.m THRUST I < XLR.3.m Z < XLR.3.m		PATCH TO PP.x, x PLATE	AS REC	2'		
XLR.3.f >- XLR.3.f >- XLR.3.f > XLR.3.f >	MIC-29 MIC-30 I/O PLATE 4 PP1.4 DANTE PIT MOUNT ON FRONT OF MIC 49 MIC 50 MIC 51 MIC 52 MIC 53 MIC 54 MIC 55 MIC 55 MIC 56 YAMAHA RIO 1608 -D2 #3 DIGITAL STAGEBO> MIC 57 MIC 58 MIC 59 MIC 60 MIC 61	SOLDER SOLDER SOLDER -SOLDER -RJ45.m THRUST 1 < XLR.3.m 2 < XLR.3.m 4 < XLR.3.m 4 < XLR.3.m 4 < XLR.3.m 7 < XLR.3.m		PATCH TO PP.x x PLATE	AS REC	2' 		BNC.f
XLR.3.f >- XLR.3.f >- XLR.3.f > XLR.3.f >	MIC-29 MIC-30 I/O PLATE 4 PP1.4 DANTE PIT MOUNT ON FRONT OF MIC 49 MIC 50 MIC 51 MIC 52 MIC 53 MIC 54 MIC 55 MIC 55 MIC 55 MIC 56 MIC 55 MIC 56 MIC 57 MIC 58 MIC 59 MIC 60 MIC 61 MIC 62	SOLDER SOLDER SOLDER -SOLDER -RJ45.m THRUST 1 < XLR.3.m 2 < XLR.3.m 4 < XLR.3.m 4 < XLR.3.m 6 < XLR.3.m 6 < XLR.3.m 7 < XLR.3.m 8 < XLR.3.m		PATCH TO PP.x x PLATE	AS REC			BNC.f
XLR.3.f >- XLR.3.f >-	MIC-29 MIC-30 I/O PLATE 4 PP1.4 DANTE DANTE MOUNT ON FRONT OF MIC 49 MIC 50 MIC 51 MIC 52 MIC 53 MIC 54 MIC 55 MIC 55 MIC 55 MIC 56 YAMAHA RIO 1608 -D2 #3 DIGITAL STAGEBOX MIC 57 MIC 58 MIC 59 MIC 60 MIC 61 MIC 62 MIC 63 MIC 63	SOLDER SOLDER SOLDER -SOLDER -RJ45.m THRUST 1 $<$ XLR.3.m 2 $<$ XLR.3.m 3 $<$ XLR.3.m 4 $<$ XLR.3.m 6 $<$ XLR.3.m 6 $<$ XLR.3.m 7 $<$ XLR.3.m 8 $<$ XLR.3.m		PATCH TO PP.x x PLATE	AS REC			BNC.f
XLR.3.f >- XLR.3.f >- XLR.3.f > XLR.3.f >	MIC-29 MIC-30 I/O PLATE 4 PP1.4 DANTE PIT MOUNT ON FRONT OF MIC 49 MIC 50 MIC 51 MIC 52 MIC 53 MIC 54 MIC 55 MIC 55 MIC 56 YAMAHA RIO 1608 -D2 #3 DIGITAL STAGEBO> MIC 57 MIC 57 MIC 58 MIC 59 MIC 60 MIC 61 MIC 62 MIC 63 MIC 64 PORTARI E	SOLDER SOLDER SOLDER -RJ45.m THRUST 1 XLR.3.m 3 XLR.3.m 4 XLR.3.m 4 XLR.3.m 6 XLR.3.m 6 XLR.3.m 7 XLR.3.m 8 XLR.3.m						
XLR.3.f >- XLR.3.f >-	MIC-29 MIC-30 I/O PLATE 4 PP1.4 DANTE DANTE MOUNT ON FRONT OF MIC 49 MIC 50 MIC 51 MIC 52 MIC 53 MIC 54 MIC 55 MIC 55 MIC 56 YAMAHA RIO 1608 -D2 #3 DIGITAL STAGEBOX MIC 57 MIC 58 MIC 59 MIC 60 MIC 61 MIC 62 MIC 63 MIC 64 PORTABLE	SOLDER SOLDER SOLDER -RJ45.m THRUST 1 XLR.3.m 2 XLR.3.m 3 XLR.3.m 4 XLR.3.m 6 XLR.3.m 6 XLR.3.m 7 XLR.3.m 8 XLR.3.m			AS REC		NNA NNA MENT	BNC.f BNC.f BNC.f BNC.f
XLR.3.f >- XLR.3.f >-	MIC-29 MIC-30 I/O PLATE 4 PP1.4 DANTE DANTE MIC 49 MIC 49 MIC 50 MIC 51 MIC 52 MIC 53 MIC 54 MIC 55 MIC 55 MIC 56 YAMAHA RIO 1608 -D2 #3 DIGITAL STAGEBO> MIC 57 MIC 58 MIC 59 MIC 59 MIC 60 MIC 61 MIC 62 MIC 63 MIC 64 PORTABLE IN PORTABLE RACK F	-SOLDER -SOLDER -SOLDER -RJ45.m THRUST 1 XLR.3.m 2 XLR.3.m 3 XLR.3.m 4 XLR.3.m 6 XLR.3.m 6 XLR.3.m 7 XLR.3.m 8 XLR.3.m 8 XLR.3.m		PATCH TO PP.X X PLATE	AS REC		<u>NNA</u>	BNC.f BNC.f BNC.f BNC.f
XLR.3.f > XLR.3.f >	MIC-29 MIC-30 I/O PLATE 4 PP1.4 DANTE DANTE MIC 49 MIC 49 MIC 50 MIC 51 MIC 52 MIC 53 MIC 54 MIC 55 MIC 55 MIC 56 YAMAHA RIO 1608 -D2 #3 DIGITAL STAGEBOX MIC 57 MIC 57 MIC 58 MIC 59 MIC 60 MIC 61 MIC 62 MIC 63 MIC 63 MIC 64 PORTABLE	-SOLDER -SOLDER -SOLDER -RJ45.m THRUST 1 XLR.3.m 2 XLR.3.m 3 XLR.3.m 4 XLR.3.m 6 XLR.3.m 6 XLR.3.m 6 XLR.3.m 7 XLR.3.m 8 XLR.3.m 8 XLR.3.m			AS REC		NNA NNA MENT	BNC.f BNC.f BNC.f BNC.f
XLR.3.f > XLR.3.f > XLR.3.f > XLR.3.	MIC-29 MIC-30 I/O PLATE 4 PP1.4 DANTE OUNT ON FRONT OF MIC 49 MIC 49 MIC 50 MIC 51 MIC 52 MIC 53 MIC 54 MIC 55 MIC 56 YAMAHA RIO 1608 -D2 #3 DIGITAL STAGEBOX MIC 57 MIC 58 MIC 59 MIC 60 MIC 61 MIC 62 MIC 63 MIC 64 PORTABLE	SOLDER SOLDER SOLDER -RJ45.m THRUST 1 < XLR.3.m 2 < XLR.3.m 3 < XLR.3.m 4 < XLR.3.m 4 < XLR.3.m 6 < XLR.3.m 6 < XLR.3.m 8 < XLR.3.m 7 < XLR.3.m 8 < XLR.3.m		PATCH TO PP.x X PLATE	AS REC		NNA NNA PMENT	BNC.f BNC.f RACK 9 ER2
XLR.3.f > XLR.3.f > XLR.3.f > XLR.3.	MIC-29 MIC-30 I/O PLATE 4 PP1.4 DANTE OUNT ON FRONT OF MIC 49 MIC 49 MIC 50 MIC 51 MIC 52 MIC 53 MIC 54 MIC 55 MIC 55 MIC 56 YAMAHA RIO 1608 -D2 #3 DIGITAL STAGEBOX MIC 57 MIC 58 MIC 59 MIC 60 MIC 61 MIC 62 MIC 63 MIC 63 MIC 64 PORTABLE IN PORTABLE RACK I	-SOLDER -SOLDER -SOLDER -RJ45.m THRUST 1 XLR.3.m 2 XLR.3.m 3 XLR.3.m 4 XLR.3.m 6 XLR.3.m 6 XLR.3.m 7 XLR.3.m 8 XLR.3.m 8 XLR.3.m 8 XLR.3.m		PATCH TO PP.x x PLATE			NNA NNA NNA	BNC.f BNC.f BNC.f BNC.f
XLR.3.f > XLR.3.f > XLR.3.f > XLR.3.f > XLR.3.f > XLR.3.	MIC-29 MIC-30 I/O PLATE 4 PP1.4 DANTE DANTE MIC 49 MIC 49 MIC 50 MIC 51 MIC 52 MIC 53 MIC 54 MIC 55 MIC 56 YAMAHA RIO 1608 -D2 #3 DIGITAL STAGEBOX MIC 57 MIC 58 MIC 59 MIC 58 MIC 59 MIC 60 MIC 61 MIC 62 MIC 63 MIC 63 MIC 64 PORTABLE IN PORTABLE RACK I			PATCH TO PP.x x PLATE	AS REC		NNA NNA MENT	BNC.f BNC.f BNC.f BNC.f
XLR.3.f > XLR.3.f > XLR.3.f > XLR.3.f > XLR.3.f > XLR.3.	MIC-29 MIC-30 I/O PLATE 4 PP1.4 DANTE PIT AOUNT ON FRONT OF MIC 49 MIC 50 MIC 51 MIC 52 MIC 53 MIC 53 MIC 54 MIC 55 MIC 55 MIC 56 YAMAHA RIO 1608 -D2 #3 DIGITAL STAGEBO> MIC 57 MIC 58 MIC 59 MIC 60 MIC 61 MIC 62 MIC 63 MIC 64 PORTABLE IN PORTABLE RACK I	SOLDER SOLDER SOLDER -RJ45.m THRUST 1 XLR.3.m 2 XLR.3.m 3 XLR.3.m 4 XLR.3.m 6 XLR.3.m 6 XLR.3.m 7 XLR.3.m 8 XLR.3.m 8 XLR.3.m 8 XLR.3.m		PATCH TO PP.x x PLATE	AS REC		NNA NNA PMENT	BNC.f BNC.f BNC.f
XLR.3.f > XLR.3.f > XLR.3.f > XLR.3.	MIC-29 MIC-30 I/O PLATE 4 PP1.4 DANTE OUNT ON FRONT OF MIC 49 MIC 49 MIC 50 MIC 51 MIC 52 MIC 53 MIC 54 MIC 55 MIC 56 YAMAHA RIO 1608 -D2 #3 DIGITAL STAGEBO> MIC 57 MIC 58 MIC 59 MIC 60 MIC 61 MIC 62 MIC 63 MIC 64 PORTABLE IN PORTABLE RACK I	SOLDER SOLDER SOLDER -RJ45.m THRUST -RJ45.m - THRUST - XLR.3.m - - XLR.3.m - - - - - - - - - - - - - - - - - - -					NNA NNA MENT	BNC.f BNC.f BNC.f BNC.f
XLR.3.f > XLR.3.f > XLR.3.f > XLR.3.f > XLR.3.f > XLR.3.	MIC-29 MIC-30 I/O PLATE 4 PP1.4 DANTE OUNT ON FRONT OF MIC 49 MIC 49 MIC 50 MIC 51 MIC 52 MIC 53 MIC 54 MIC 55 MIC 55 MIC 56 MIC 57 MIC 57 MIC 57 MIC 57 MIC 58 MIC 59 MIC 60 MIC 61 MIC 61 MIC 62 MIC 63 MIC 63 MIC 64 PORTABLE IN PORTABLE RACK I	-SOLDER -SOLDER -SOLDER -RJ45.m THRUST 1 XLR.3.m 2 XLR.3.m 3 XLR.3.m 4 XLR.3.m 6 XLR.3.m 6 XLR.3.m 6 XLR.3.m 7 XLR.3.m 8 XLR.3.m 8 XLR.3.m 8 XLR.3.m		PATCH TO PP.x x PLATE	AS REC		NNA NNA <u>NNA</u>	BNC.f BNC.f BNC.f BNC.f
XLR.3.f /- XLR.3.f /- <	MIC-29 MIC-30 I/O PLATE 4 PP1.4 DANTE OUNT ON FRONT OF MIC 49 MIC 49 MIC 50 MIC 51 MIC 52 MIC 53 MIC 53 MIC 54 MIC 55 MIC 56 YAMAHA RIO 1608 -D2 #3 DIGITAL STAGEBOX MIC 57 MIC 58 MIC 59 MIC 60 MIC 61 MIC 62 MIC 63 MIC 64 PORTABLE IN PORTABLE RACK I	SOLDER SOLDER SOLDER -RJ45.m THRUST -RJ45.m -RJ45.m -RJ45.m - XLR.3.m - - XLR.3.m - - - - - - - - - - - - - - - - - - -		PATCH TO PP.x X PLATE	AS REC		<u>NNA</u>	BNC.f BNC.f BNC.f BNC.f
XLR.3.f > XLR.3.f > XLR.3.f > XLR.3.f > XLR.3.f > XLR.3.	MIC-29 MIC-30 I/O PLATE 4 PP1.4 DANTE OUNT ON FRONT OF MIC 49 MIC 49 MIC 50 MIC 51 MIC 52 MIC 53 MIC 54 MIC 55 MIC 56 MIC 56 MIC 57 MIC 57 MIC 58 MIC 59 MIC 60 MIC 61 MIC 61 MIC 62 MIC 63 MIC 64 PORTABLE IN PORTABLE RACK I	SOLDER SOLDER SOLDER -RJ45.m THRUST 1 XLR.3.m 2 XLR.3.m 3 XLR.3.m 4 XLR.3.m 4 XLR.3.m 6 XLR.3.m 6 XLR.3.m 7 XLR.3.m 8 XLR.3.m 8 XLR.3.m 8 XLR.3.m					NNA NNA PMENT	BNC.f BNC.f BNC.f BNC.f
XLR.3.f /- XLR.3.f /- <	MIC-29 MIC-30 I/O PLATE 4 PP1.4 DANTE OUNT ON FRONT OF MIC 49 MIC 49 MIC 50 MIC 51 MIC 52 MIC 53 MIC 54 MIC 55 MIC 56 YAMAHA RIO 1608 -D2 #3 DIGITAL STAGEBOX MIC 57 MIC 58 MIC 59 MIC 60 MIC 61 MIC 62 MIC 63 MIC 63 MIC 64 PORTABLE IN PORTABLE RACK I	SOLDER SOLDER SOLDER -RJ45.m THRUST -RJ45.m - THRUST - - - - - - - - - - - - - - - - - - -						BNC.f BNC.f BNC.f BNC.f





	5 PS-1.1					
XLR.3.f 〉 XLR.3m 〉	- MIC A - TL1					
XLR.3.f	TL-1		8			
XLR.3.f	TL-2 I/O PLATE	GOLDEN				
	DANTE	-RJ45.m-				
MOUNT	STAGE RIGHT	LL RACK	, 	 		
XLR.3.f >		SOLDER		- — — — 		
XLR.3m >	TL-3	SOLDER		 		
XLR.3.m	TL-4	SOLDER				
	18 PP1.2					
	DANTE	-RJ45.m-				
	STAGE LEFT					
MOUNT I = = = = =	N EXISTING STG L WAI		======			
XLR.3.f >	MIC A TL-5	-SOLDER		 		
XLR.3.f >	- TL-5—┘ - TL-6———————————					
XLR.3.f >-	TL-6→ I/O PLATE 18 PP1.3					
	DANTE	-RJ45.m-				
MOUNT I	UP STAGE N EXISTING U STG WA	LL RACK				
XLR.3.f 〉 XLR.3m 〉	- TL-7	SOLDER	•			
XLR.3.f			$\rightarrow \bullet$			
xlr.3m ≻ Xlr.3.f ≻	¹ ^{L-8} I/O PLATE TL-9 4_TL1.1		$\begin{array}{c} \\ \\ \\ \end{array} \end{array} + \begin{array}{c} \\ \\ \end{array} + \begin{array}{c} \\ \end{array} + \begin{array}{c} \\ \\ \end{array} + \begin{array}{c} \\ \end{array} + \begin{array}{c} \\ \\ \end{array} + \begin{array}{c} \\ + \end{array} + \begin{array}{c} \\ \end{array} + \end{array} + \begin{array}{c} \\ \end{array} + \begin{array}{c} \\ \end{array} + \end{array} + \begin{array}{c} \\ \end{array} + \begin{array}{c} \\ \end{array} + \end{array} + \begin{array}{c} \\ + \end{array} + \end{array} + \end{array} + \begin{array}{c} \\ + \end{array} + \end{array} + \end{array} + \\ + \end{array} + \end{array} + \\ + \\$			
XLR.3m >	- TL-9 - TL-10					
XLR.3m	TL-10 OVER STAGE					
XLR.3.f >	TL-7── ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─	SOLDER				
XLR.3.f >	TL-8					
XLR.3.f	$TL-9 \rightarrow 4 TL1.2$					
XLR.3m >	TL-9 TL-10					
XLR.3m >	TL-10 OVER STAGE					
XLR.3m 〉	TL-11 _T — — — — — — —	SOLDER				
XLR.3.f >	TL-11┘ TL-12┬ — — — — — — —					
XLR.3.f >-	TL-12					
	I/O PLATE 4 TL1.4					
	TL-13— — — — — — — — —					
лык.з.т — XLR.3.m —	TL-14					
XLR.3.f 〉						
	TI -15-					
alr.3m ≻ XLR.3.f ≻	- TL-15 — — — — — — — — — — — — — — — — — —					
XLR.3.m >	TL-16 ⁺⁻	+SOLDER				
XLR.3m >	18 RP1.5 TL-17⊤ — — — — — — —					
XLR.3.f >	- TL-17┘ - TL-18┬- — — — — — — —					
XLR.3.f >	TL-18					
	9 ER2.1					
XLR.3m	TL-19			TL-19 — — — —		
лык. 3.1 — XLR.3.m —	TL-20 TL/O PLATE					
XLR.3.f >	TL-20 ^J 4 PP2.1		XLR.3.f >	TL-20 ⁻ 4 PP2.2		
	TL-21			TL-21-		
лыт.э.т /- XLR.3.f /-	- TL-22		- ∧∟ҡ.з.т ∕- XLR.3.f ∕-	- TL-22↓		_
	DANTE	-RJ45.m- -		HOUSE BOOTH	DANTE –RJ45.m– –	
	\frown			\rightarrow		



•	STRIP LOWELL 50LVC-SW	1 STRIP YAMAHA VXS5 QTY. 15w 8 S2.XX OF 1
		WALL. MOUNTED IN DRESSING ROOM
•	STRIP LOWELL 50LVC-SW	1 ST4.2 STRIP 15w 8 S2.XX OF 1
	DRESSING ROOM	WALL. MOUNTED IN DRESSING ROOM
•	= = = = = = = = = = = = = = = = = = =	1 ST4.3 STRIP YAMAHA VXS5 QTY. 15w 8 S2.XX OF 1
	DRESSING ROOM	WALL. MOUNTED IN DRESSING ROOM
	STRIP LOWELL 50LVC-SW	1 ST4.4 STRIP- 15w 8 S1.XX OF 1
		WALL. MOUNTED IN DRESSING ROOM







THIS SHEET WAS ADDED AS PART OF **ADDENDUM 1**

SUSPEND OVER THRU	IST		AT ACOUSTICAL CLOU	DS
AFC MICROPHONE	XLR.3.m XLR.3.f XLR.3.r	 m XLR.3.f	I/O PLATE	-SOLDER
AFC MICROPHONE	XLR.3.m XLR.3.f XLR.3.r		I/O PLATE MIC-AM2 1 AM1.2	SOLDER
AFC MICROPHONE	XLR.3.m XLR.3.f >	m XLR.3.f)	I/O PLATE MIC-AM3 1 AM1.3	SOLDER
AFC MICROPHONE	XLR.3.m XLR.3.f >	m XLR.3.f >-	I/O PLATE MIC-AM4 1 AM1.4	SOLDER
SUSPEND OVER ORCHE	ESTRA SEATS	= = = = : 	======================================	
AFC MICROPHONE	XLR.3.m XLR.3.f >	m XLR.3.f >-	I/O PLATE MIC-AM5 1 AM1.5	SOLDER
AFC MICROPHONE	XLR.3.m XLR.3.f XLR.3.r	m XLR.3.f)	I/O PLATE MIC-AM6 1 AM1.6	-SOLDER
AFC MICROPHONE	XLR.3.m XLR.3.f XLR.3.r	n XLR.3.f)—	I/O PLATE MIC-AM7 1 AM1.7	SOLDER
AFC MICROPHONE	XLR.3.m XLR.3.f >	n XLR.3.f >-	I/O PLATE MIC-AM8 1 AM1.8	SOLDER
SUSPEND OVER STAGE	1		OVER STAGE	
AFC MICROPHONE	XLR.3.m XLR.3.f >	m XLR.3.f)	-MIC-AM9	-SOLDER
AFC MICROPHONE	XLR.3.m XLR.3.f >	m XLR.3.f >-	MIC-AM10 I/O PLATE	SOLDER
AFC MICROPHONE	XLR.3.m XLR.3.f >	n XLR.3.f >-	-MIC-AM11	-SOLDER

XLR.3.m XLR.3.f XLR.3.m XLR.3.f MIC-AM12 -SOLDER

SETUP BY AFC

LOCATED IN EQUIPMENT RACK 9 ER1.1

MICROPHONE

1 ACOUSTIC SYSTEM INPUT FLOW DIAGRAM PS1.3 SCALE: NONE

> OUT 1 - PHNX-DANTE IN 1-8 OUT 2 -PHNX-OUT 3 -PHNX-OUT 4 -PHNX-YANAHA XVM8280D AMPLIFIER #AFC11 OUT 5 - PHNX-OUT 6 PHNX OUT 7 -PHNX-RJ45.m-CONTROL OUT 8 - PHNX-RJ45.m DANTE

LOCATED IN EQUIPMENT RACK 9 ER1.2

ACOUSTIC SYSTEM OUTPUT FLOW DIAGRAM PS1.3 / SCALE: NONE

THIS SHEET WAS ADDED AS PART OF **ADDENDUM 1**

— QTY. OF 2 QTY. OF 2 - QTY. – QTY. OF 2 - QTY. QTY. OF 2 QTY. OF 2 - QTY. - QTY.

OF 2 OF 2 OF 2 OF 2

OVER UNDER BALCONY SEATING 1 AS4.X - QTY. YAMAHA VXS5 OUT 1 - PHNX-DANTE IN 1-8 STRIP-80HM OF 2 8 AS4.X OUT 2 -PHNX-- QTY YAMAHA VXS5 OUT 3 -PHNX--STRIP- 80HM OF 2 8 AS4.X OUT 4 PHNX-YANAHA XVM8280D - QTY. YA<u>MAHA VX</u>S5 -STRIP- 80HM 8 AS4.X OF 1 AMPLIFIER #AFC6 OUT 5 PHNX------ QTY. YAMAHA VXS5 • -STRIP- 80HM OUT 6 -PHNX-OF 2 8 AS4.X OUT 7 -PHNX---- QTY. YA<u>MAHA VX</u>S5 RJ45.m CONTROL OUT 8 -PHNX----_RJ45.m DANTE -STRIP- 80HM OF 2 8 AS4.X - QTY. YAMAHA VXS5 -STRIP- 80HM OF 2 8 AS4.X OF 1 OF 2







SUS	SPENDED FRO	DM CEILING	
	— — — — — — — — — — — — — — — — — — —	OFOI NETWORK	

DRAPER 114232 PROJECTION SCREEN

HDMI.m- HDMI __ EPSON

-DSUB.9.m- RS232PROJECTOR

- REQUIRES ELPLW06/W04 LENS











THIS SHEET WAS ADDED AS PART OF **ADDENDUM 1**

 \bigwedge

-	
S DNTROL 1.1	WINCH CONTROL MC1.6
S	SRS
DNTROL	WINCH CONTROL
.2	MC1.7
S	SRS
DNTROL	WINCH CONTROL
.3	MC1.8
S	SRS
ONTROL	WINCH CONTROL
.4	MC1.9
S	SRS
DNTROL	WINCH CONTROL
1.5	MC1.10
STAGE	

L_______



		 /					ETC
		WIRELE	E2500 ESS ROUTEF	RJ45.m	——————————————————————————————————————	RJ45.m_ 	ION XE LIGHTING C
	PORTABLE	WIRELES	IPAD S LIGHT. CC	<u>n.</u>)))))		г — — — — —	
							ENTRY ST
							ENTRY ST
							PRESET ST
							N_EQUIPMEN ⁻



 RJ45.m−	PRODUCTION PLATE	
RJ45.m-	PRODUCTION PLATE 18 PP1.2 L. NET	RJ45.f
RJ45.m	PRODUCTION PLATE 18 PP1.3 L. NET TED ON STAGE	RJ45.f

—— RJ45.m-	PRODUCTION PLA 18 PP2.1	ATE NET — RJ45.f
	VTED CONTROL BO	DOTH
——RJ45.m-	PRODUCTION PLA 18 PP2.2 L	ATE NET — RJ45.f
	NTED UNDER BALC	CONY COLUMN
RJ45.m-	PRODUCTION PLA 18 PP2.3 L NTED BALCONY BC	ATE NET RJ45.f

L. NET PLATE RJ45.m 1 D2.1 L. NET RJ45.m	5.f
L. NET PLATE RJ45.m MOUNTED TO SIDE WALL AT BALCONY	5.f
L. NET PLATE RJ45.m 1 D1.1 L. NET RJ45.m	5.f
MOUNTED TO CATWALK PIPE BATTEN	
RJ45.m RJ45 (1ST ELECTRIC - LEFT)	5.f
RJ45.m L. NET PLATE RJ45.m 1 D1.3 L. NET RJ45 (1ST ELECTRIC - RIGHT)	5.f
RJ45.m RJ45.m RJ45.m RJ45 (2ND ELECTRIC - LEFT)	5.f
$ \begin{array}{c} \\ \\ \\ \\ \\ \\ \\ \\ \\ $	5.f
L. NET PLATE RJ45.m L. NET CRJ4	5.f
RJ45.m L. NET PLATE RJ45.m 1 D1.7 L. NET RJ45 (3RD ELECTRIC - RIGHT)	5.f
SURFACE MOUNTED OVER STAGE	





THIS SHEET WAS ADDED AS PART OF ADDENDUM 1





				TRIAC.m	RIO i8D #1	CKT#1
			-TRIAC.m		DANTE SW #3A	CKT#1
	TO AV POWER		-TRIAC.m			
	CKT#1 20A 117VAC	UPS	-TRIAC.m	TRIAC.m	NETWORK SW #3	CKT#1
			-TRIAC.m			
	FROM CRESTRO			Г	YAMAMA	
	<u>PS.1.6</u>	STRIP-SW. RPC-20 RELAY STRIF	-TRIAC.m-	TRIAC.m	AFC-4 ENGINE	
FROM CRESTRON	- STRIP TO AV POWER ■)	STRIP- SW. LOWELL SW. RPC-20 RELAY STRIF	-TRIAC.m	TRIAC.m -	NEXO 4X1MK2 AMPLIFIER #1	CKT#2
		STRIP- SW. RPC-20	-TRIAC.m-	TRIAC.m -	NEXO 4X1MK2 AMPLIELER #2	CKT#3
	CKT#3 20A 117VAC					
	- STRIP TO AV POWER ≣) CKT#4	STRIP- SW. RPC-20 RELAY STRIF	-TRIAC.m-	TRIAC.m _	YAMAHA XMV140D AMPLIFIER #4	CKT#4
	20A 117VAC	MOUNTED IN BALCONY	RACK 9 ER1.1			
	Г I					
				TPIAC m	YAMAHA	0//7#5
			-TRIAC.m		AMPLIFIER #AFC1	
	TO AV POWER ╡) CKT#5 20A 117VAC	RPC20 RELAY STRIF	-TRIAC.m	TRIAC.m -	YAMAHA XVM8280D	CKT#5
					AMPLIFIER #AFC2	
LOWELL				TRIAC.m -	YAMAHA XVM8280D AMPLIFIER #AFC3	CKT#6
SEQUENCER 8-STEP			D			
	CKT#6 20A 117VAC		-TRIAC.m	TRIAC.m –	YAMAHA XVM8280D AMPLIFIER #AFC4	CKT#6
				_		_
	- STRIP	 	-TRIAC.m	TRIAC.m -	XVM8280D AMPLIFIER #AFC5	CKT#7
	TO AV POWER ■) CKT#7	LOWELL RPC20 RELAY STRIF	5	Г	УАМАНА	
	20A 117VAC		TRIAC.m	TRIAC.m –	XVM8280D AMPLIFIER #AFC6	
					YAMAHA	CKT#8
			-TRIAC.m		AMPLIFIER #AFC7	
	CKT#8 20A 117VAC	RELAY STRIF	-TRIAC.m	TRIAC.m -	YAMAHA XVM8280D	CKT#8
					AMPLIFIER #AFC8	
				TRIAC.m _	YAMAHA XVM8280D AMPLIFIER #4500	CKT#9
		LOWELL RPC20		, L		
	CKT#9 20A 117VAC			TRIAC.m -	YAMAHA XVM8280D AMPLIFIER #AFC10	CKT#9
MOUNTED IN BALCONY RACK 9 ER1.1	 		RACK 9 ER1.2			

	 	DANTE SW #2A 13 ER2.2
-TRIAC.m		
-TRIAC.m	TRIAC.m	NETWORK SW #2 13 ER2.2
9 ER2.2	 	

QL-5 CONSOLE

-TRIAC.m	TRIAC.m —	INTERCOM MAIN STATION	CKT#11
-TRIAC.m	TRIAC.m	YAMAMA MRX-7 AUDIO DSP	CKT#11
-TRIAC.m	TRIAC.m	DANTE SW #1A 13 ER2.1	CKT#11
-TRIAC.m	TRIAC.m —	NETWORK SW #1 13 ER2.1	CKT#11
-TRIAC.m		CRESTRON MAIN CONTROL	CKT#11 CKT#11
-TRIAC.m	TRIAC.m	VIDEO SWITCH	CKT#11
-TRIAC.m	TRIAC.m	RIO 1608D2 #1 9 ER2.1	CKT#11
-TRIAC.m	TRIAC.m	RIO 1608D2 #2 9 ER2.1	CKT#11

- STRIP- SW.RELAY STRIP #2

			1
-TRIAC.m	TRIAC.m —	WIRELESS RX	CKT#12
-TRIAC.m	TRIAC.m —	ASSISTIVE LISTENING SYSTEM	CKT#12
-TRIAC.m	TRIAC.m —	4 CH W DANTE WIRELESS RX #1	CKT#12
-TRIAC.m	TRIAC.m —	4 CH W DANTE WIRELESS RX #1	CKT#12
-TRIAC.m	TRIAC.m —	4 CH W DANTE WIRELESS RX #1	CKT#12
-TRIAC.m	TRIAC.m —	4 CH W DANTE WIRELESS RX #1	CKT#12
-TRIAC.m	TRIAC.m	DENNON CD-500 CB CD/ iPOD PLAYER	CKT#12
-TRIAC.m	TRIAC.m	POWER STRIP FOR OTHER VIDEO EQUIP.	CKT#12

	_		
2	-TRIAC.m	—— TRIAC.m –	YAMAHA XMV140D AMPLIFIER #4

UPS

VELL 506-LTS NEL W LIGH ⁻	-TRIAC.m	TRIAC.m TRIAC.m	DENNON CD-500 CB CD/ iPOD PLAYER DENNON DM-300R MK2 SSD RECORDER MOUNTED IN PORTABLE RACKS
VELL 506-LTS NEL W LIGH	T	TRIAC.m	YAMAHA RIO 1608 -D2 #3 DIGITAL STAGEBOX MOUNTED IN PORTABLE RACKS

THIS SHEET WAS ADDED AS PART OF **ADDENDUM 1**

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(FT)	SIDE SLOPES	RQD. SURFACE AREA (SF)	DIMENSIONS	Sd2-F No.	DRAINAGE AREA (AC)	RQD. STORAGE (CF)	DEPTH (FT)	SIDE SLOPES	RQD. SURFACE AREA (SF)	DIMENSIONS
	2:1	120	11' x 11'	17	0.17	303	3	2:1	101	11' x 11'
	2:1	80	11' x 11'	18	0.16	285	3	2:1	95	11' x 11'
	2:1	85	11' x 11'	19	0.06	102	3	2:1	34	11' x 11'
	2:1	46	11' x 11'	20	0.09	170	3	2:1	57	11' x 11'
	2:1	82	11' x 11'	21	0.23	408	3	2:1	136	12' x 12'
	2:1	140	12' x 12'	22	0.12	215	3	2:1	72	11' x 11'
	2:1	117	11' x 11'	23	0.05	86	3	2:1	29	11' x 11'
	2:1	96	11' x 11'	24	0.10	173	3	2:1	58	11' x 11'
	2:1	64	11' x 11'	25	0.09	158	3	2:1	53	11' x 11'
	2:1	80	11' x 11'	26	0.01	26	3	2:1	9	11' x 11'
	2:1	106	11' x 11'	27	0.02	30	3	2:1	10	11' x 11'
	2:1	62	11' x 11'	28	0.02	43	3	2:1	14	11' x 11'
	2:1	95	11' x 11'	29	0.06	110	3	2:1	37	11' x 11'
	2:1	50	11' x 11'	30	0.03	61	3	2:1	20	11' x 11'
	2:1	63	11' x 11'	31	0.04	77	3	2:1	26	11' x 11'
	2:1	67	11' x 11'	32	0.04	65	3	2:1	22	11' x 11'
	•			33	0.13	231	3	2:1	77	11' x 11'
				34	0.14	251	3	2:1	84	11' x 11'
				35	0.09	161	3	2:1	54	11' x 11'















	FRAME					
TYPE	MATERIAL	FINISH	HEAD DETAIL	JAMB DETAIL	SILL DETAIL	REMARKS
HM1	Hollow Metal	Painted	6/A8.10	7/A8.10		OMIT IF ADD ALTERNATE IS ACCEPTED
SF1	Aluminum		SEE SF ELEV.	SEE SF ELEV.	SEE SF ELEV.	
SF2	Aluminum		SEE SF ELEV.	SEE SF ELEV.	SEE SF ELEV.	
SF1	Aluminum		SEE SF ELEV.	SEE SF ELEV.	SEE SF ELEV.	
SF7	Aluminum		SEE SF ELEV.	SEE SF ELEV.	SEE SF ELEV.	
HM1	Hollow Metal	Painted	3/A8.10	5/A8.10	4/A8.10	
HM1	Hollow Metal	Painted	9/A8.10	10/A8.10		
HM1	Hollow Metal	Painted	9/A8.10	10/A8.10		
HM1	Hollow Metal	Painted	9/A8.10	10/A8.10		
HM1	Hollow Metal	Painted	9/A8.10	10/A8.10		
			1/A8.10	2/A8.10		
			1/A8.10	2/A8.10		
			1/A8.10	2/A8.10		
HM1	Hollow Metal	Painted	9/A8.10	10/A8.10		
HM1	Hollow Metal	Painted	9/A8.10	10/A8.10		
HM1	Hollow Metal	Painted	9/A8.10	10/A8.10		
HM1	Hollow Metal	Painted	3/A8.10	5/A8.10	8/A8.10	
HM2	Hollow Metal	Painted	9/A8.10	10/8A8.10	12/A8.10	
HM2	Hollow Metal	Painted	9/A8.10	10/8A8.10	12/A8.10	
HM3	Hollow Metal	Painted	9/A8.10	10/8A8.10	12/A8.10	
HM4	Hollow Metal	Painted	11/A8.10	12/A8.10	12/A8.10	
HM1	Hollow Metal	Painted	3/A8.10	5/A8.10	4/A8.10	
HM1	Hollow Metal	Painted	9/A8.10	10/A8.10		
HM1	Hollow Metal	Painted	9/A8.10	10/A8.10		
HM1	Hollow Metal	Painted	3/A8.10	5/A8.10	8/A8.10	
HM1	Hollow Metal	Painted	11/A8.10	10/A8.10		
SF7	Aluminum		SEE SF ELEV.	SEE SF ELEV.	SEE SF ELEV.	

NATE								
	FRAME							
	TYPE	MATERIAL	FINISH	HEAD DETAIL	JAMB DETAIL	SILL DETAIL	REMARKS	
				SEE ELEV.	SEE ELEV.			

	KEYNOTE LEGEND - BY SHEET
	12 21 13.B HORIZONTAL LOUVER BLINDS (HLB)
	GENERAL DOOR NOTES
	 SEE FLOOR PLANS AND ELEVATIONS FOR DOOR LOCATIONS AND FRAME LOCATIONS. OVERALL HORIZONTAL AND VERTICAL FRAME DIMENSIONS ARE TO MASONRY OPENINGS. VIEW LITES IN ALL NON-LABELED INTERIOR DOORS SHALL BE LAMINATED CLEAR SAFETY GLASS.
	 UNLESS NOTED OTHERWISE. VIEW LITES IN ALL FIRE RATED DOORS SHALL BE FIRE RATED GLASS, UNLESS NOTED OTHERWISE. EXTERIOR WINDOW AND STOREFRONT FRAMING SHALL BE PROVIDED WITH TEMPERED. LOW-E
	 INSULATING GLASS UNITS, UNLESS NOTED OTHERWISE. 6 INTERIOR WINDOW AND BORROW LIGHTS SHALL BE PROVIDED WITH LAMINATED CLEAR GLASS, UNLESS NOTED OTHERWISE.
	 SEE FRAME ELEVATIONS FOR SILL HEIGHTS, AFF. CENTERLINE OF ALL EXIT DEVICES SHALL BE 37" AFF, UMLESS NOTED OTHERWISE. SILL PANS SHALL BE PROVIDED UNDER ALL EXTERIOR WINDOWS AND STOREFRONT NOT SITTING
	DIRECTLY ON FLOOR SLAB. WINDOWS AND STOREFRONT SITTING DIRECTLY ON FLOOR SLAB SHAL BE SET ON MANUFACTURER'S SUBSILL, SET IN FULL BED OF SEALANT. 10 WHERE HORIZONTAL LOUVER BLINDS (HLB) ARE SCHEDULED AT TYPE "G" DOORS, INSTALL AT DOOR
	 LIGHT AND SIDE LITE, WHERE APPLICABLE. HORIZONTAL LOUVER BLINDS (HLB) AND ELECTRIC ROLLER WINDOW SHADES (ERWS) INSTALLED AT STOREFRONT WINDOW OPENINGS WHERE NOTED.
	 PROVIDE CONDUIT FOR POWER AT ALL EXTERIOR DOORS FOR ACCESS CONTROL AND/OR DOOR POSITION SWITCHES. EXCEPT WHERE NOTED ELSEWHERE, ACCESS CONTROL DEVICES WILL BE INSTALLED BY OWNER. BRICK LINTEL ANGLES SHALL BE PAINTED
	 ALL NAILERS AND BLOCKING USED WITH MASONRY, CONCRETE OR METAL SHALL BE PRESSURE TREATED.
	DOOR ABBREVIATIONS
	AA ACTIVE/ACTIVE LEAF CONFIGURATION AL ACTIVE/INACTIVE LEAF CONFIGURATION BL BORROWED LITE
	SG SINGLE LEAF CONFIGURATION WBS WHITE BIRCH STAINED HEOF HIGH PERFORMANCE ORGANIC FINISH
	GLAZING LEGEND
	TFG 08 80 00 CLEAR FULLY TEMPERED FLOAT GLASS
	LG-1 08 80 00 CLEAR LAMINATED FULLY TEMPERED FLOAT GLASS
	IRG-108 80 00TEMPERED, LOW-E COATED CLEAR INSULATING GLASSFRG08 88 13FIRE RESISTANT GLASS
FGR	
FULL GLASS RATED (ADD ALTERNATE)	











