

260953 – STAGE LIGHTING

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. All work of this section shall comply with the requirements of any documentation issued by Owner, related to the Project, and with all Drawings and all other Contract Documents, including all Addenda.

1.2 MODIFICATIONS TO GENERAL CONDITIONS

- A. Where any requirements of this section modify, change or add to any part of the Project Specifications, the remaining, unaltered provisions of that part of that section shall remain in effect. Where any requirement of this section and any requirement of Project Specification conflict, the most rigorous provision shall apply.

1.3 DEFINITIONS

- A. "Owner" as used in this section means the representative of the Town of Westport
- B. "Contractor" as used in this section refers to that subcontractor directly responsible for supply of the Stage Lighting.
- C. "Electrical Contractor" or "EC" as used in this section refers to the contractor responsible for supply and installation of all electrical wiring, conduit, fasteners, terminations and labor for the Project.
- D. "Project" as used in this section refers to the renovation of the stage lighting system (and related electrical work), at Staples High School, including, but not limited to the work described in this section.
- E. "Consultant" as used in this section refers to THEATER DESIGN INC.
- F. "Electrical/Mechanical Engineer" as used in this section refers to CES.
- G. "Structural Engineer" as used in this section refers to MG McLaren
- H. "Sound/AV consultant" as used in this section refers to D'Agostino & Associates
- I. "Contractor" as used in this section refers to the contractor with overall responsibility for the completion of the work of this specification.
- J. "Theater Equipment" as used in this section refers to the work described in paragraphs 1.5 through 1.10.
- K. "Supply" as used in this section means, "to supply, complete with instruction for installation (installation by others)".
- L. "Provide" as used in this section means "supply, install and make operable".
- M. "NIC" as used in this section and on the contract drawings means "not included in this subcontract, not to be supplied".

- N. "By Others" as used in this section and on the contract drawings means "not included in this subcontract, supplied as part of another subcontract".
- O. "Or As Approved" as used in this section and on the contract drawings means "substitution only after written approval by Consultant.

1.4 RELATED DOCUMENTS

- A. 116010 Stage Rigging
- B. 274100 AV
- C. Structural drawings S000-S002
- D. Electrical drawings E100-E106

1.5 SCOPE OF WORK

- A. The Scope of Work includes:
 - 1. The removal of the existing stage lighting system and installation of a new stage lighting system and related electrical work),
- B. All equipment shall perform as specified when installed on site. Failure to meet any requirement of this section on site shall be deemed sufficient cause for rejection of equipment.
- C. Examine all portions of this specification and the contract drawings to determine their interrelationships and necessary coordination. Provide all products, and execute all work, of this section in accordance all codes and customary practice.

1.6 WORK INCLUDED IN THIS SECTION – STAGE LIGHTING

- A. Demolition
 - 1. Remove and dispose of existing stage lighting system, including dimmer racks, distribution devices and other related equipment, devices, etc. per Owner direction.
 - 2. Remove and store existing stage lighting fixtures per Owner direction
 - 3. Remove and store existing stage cables and other accessories per Owner direction
- B. Provide all stage lighting system components identified on the TE-series and as specified herein
- C. Coordinate with electrical contractor and other trades as may be required.
- D. Provide labor and an experienced supervisor to:
 - 1. Install and make operable the stage lighting system

2. Assemble new stage lighting fixtures and install per the TE series drawings
3. Test and commission the system.

- E. Provide site inspection reports and installation instructions
- F. Provide as-built drawings, guarantee, warranty, operation manuals, instructions and software updates

1.7 RELATED WORK BY OTHERS

- A. Relocation of pipes, ductwork and any other mechanical devices that conflict with installation of the new loading gallery
- B. Installation of new sound and AV system

1.8 RESPONSIBILITIES

- A. All work of this Specification shall be furnished by a Contractor who will bear overall responsibility for the successful execution and completion of the Project.
- B. Make any and all alterations to standard design and construction of any equipment necessary to meet any and all requirements of this Section.
- C. The Contract Documents describe performance attributes of systems to be provided, including means of operation and control, dimensions and profiles, and visual appearances. Assume all responsibility for engineering of systems described, including modification of and addition to any details as required fulfilling the design intent of this specification.
- D. Omissions and/or errors within this specification shall not relieve the General Contractor or their sub-contractors of the responsibility for providing a properly functioning installation of theater systems as described herein
- E. Correct or replace, at no cost to Owner, any system or part of system found not meeting specifications at time of Completion Checkout, or any time during warranty period.

1.9 QUANTITIES

- A. In case of a discrepancy in the quantities between this specification and contract drawings, the larger number shall prevail
- B. Should any quantities identified in this specification be insufficient to meet the design intent of the specification, the General Contractor shall provide the required quantities

1.10 QUALIFICATIONS

- A. The contractor shall be the exclusive systems designer and engineer of the stage lighting system. The contractor shall provide the following information as part of their bid package:
 1. List of representative current projects and approximate contract value. Include list of names, phone numbers and addresses of owner, owner's representatives and architect.

2. For projects described above, list of names of persons who supervised preparation of shop drawings, manufacture of components, and installation of equipment.
 3. List of names, phone numbers, and addresses of persons who would do project management, product engineering, supervision of shop drawing, supervision of testing and user training for Stage Lighting System should this contract be awarded.
 4. The Contractor shall maintain a full-time field engineering staff.
- B. Listed stage lighting contractors are:
1. Barbizon www.barbizon.com
 2. Supertech www.supertech-inc.com
 3. Candela Controls www.candelacontrols.com
- C. BASIS OF BID
1. Stage lighting – ETC
- D. Listing of equipment and components manufactured by Basis of Bid manufacturers is not an endorsement of those items, but a point of reference and a basis for the respective system designs.
- E. Proposed substitutions for any work of this section to be submitted to Theater Consultant for approval two (2) weeks prior to bid due date. Identify the specific component/system with an explanation for the substitution and a demonstration of its equivalency to the Basis of Bid.
- F. Approval of any proposed substitution to be at the sole discretion of the Theater Consultant.
- 1.11 CODES AND STANDARDS
- A. Provide materials, components and assemblies that are UL, CE listed and meet all applicable codes, standards, and specifications applying to the work of this section.
- 1.12 OWNER'S TESTING AGENCY
- A. If any work is required to be specially tested or approved, whether by the Owner's instructions or by any laws, ordinances or any public authority, the Contractor shall give Owner's representative timely notice of its readiness for inspection, and of dates of inspections to be made by other authorities, through General Contractor. Contractor is responsible for time, labor, materials and fees associated with such.
- 1.13 SHOP DRAWINGS
- A. Provide a PDF file of all shop drawing for submittal to Consultant. Include cut sheets and equipment manuals, as may be appropriate.
- B. Prepare all shop drawings under supervision of a qualified project engineer. Include names and contact telephone numbers of project manager and project engineer with shop drawing package.

- C. Engineer, design and draft all shop drawings to represent actual fabrication and installation drawings and details. Copies or tracings of contract drawings will not be acceptable as shop drawings and shall be rejected.
- D. Submit shop drawings as a package containing all drawings, details, layouts, schedules and schematics necessary to fully explain design features, appearance, fabrication, installation, function and operation of each system completely. Provide a fully referenced index of drawings.
- E. Shop drawing packages that are incomplete will not be reviewed until such time as complete set of relevant drawings, cut sheets and other information is submitted.
- F. Review of shop drawings by Consultant is for conformance with design concept and for conformance with information given in the contract documents. Nonconformities and errors detected during review shall be noted on shop drawings and returned to Contractor on completion of review. Consultant is not responsible for completeness or accuracy of the Contractor shop drawings. Acceptance of shop drawings including deviations and inconsistencies not detected during review shall not relieve the Contractor from sole responsibility to provide materials and work conforming to the letter and spirit of the Stage Lighting contract documents.
- G. No equipment shall be manufactured, fabricated, shipped or installed prior to shop drawings being reviewed by Consultant. Only shop drawings returned marked "Reviewed" or "Make Corrections as Noted" may be used by contractor in the work. Correct and resubmit any shop drawings marked "Revise and Resubmit" or "Rejected."
- H. If field dimensions obtained after approval of shop drawings require changes in size, detail or similar considerations, revised shop drawings shall be submitted for review.
- I. All shop drawings shall identify THEATER DESIGN INC, as the theater consultant, along with its website: www.theaterdesigninc.com.

1.14 SAMPLES

- A. Submit all samples as requested by Consultant.

1.15 MOCK UPS

- A. Provide mock-ups as requested by Consultant.

1.16 INSTALLATION INSTRUCTIONS

- A. Provide installation instructions for all items supplied in this section, as reviewed and approved with the shop drawings. Such instructions to be fully coordinated with trades doing adjoining work and with site conditions. Instructions shall include inter-equipment connection diagrams with terminal designations.

1.17 INSPECTION REPORTS

- A. If conditions exist that are contrary to proper installation of Stage Lighting System, directly inform General Contractor, Owner and Consultant of the discrepancies. Failure to inform General Contractor shall constitute acceptance of installation and place responsibility for any revisions or additions necessary to properly install work of this section with Contractor.

1.18 OPERATIONS MANUALS

- A. Provide two (2) copies of an Operations Manual, in approximately 8-1/2" x 11" 3-ring binders. Where page is larger than 8-1/2" x 11", said page shall be folded to fit within the binder. Each Manual shall contain; a complete description of the system operation, all equipment operating instructions, all equipment schematics, all equipment service manuals, recommended maintenance procedures, all equipment data sheets, all system test data, all warranty information, and all as built drawings. The manuals shall be fully indexed for ease of use.
- B. Provide copy of operations manual as a PDF file.
- C. Submit a draft to Consultant for approval at least 4 weeks prior to completion checkout. If manual is rejected, revise as needed and resubmit prior to delivering to Owner.
- D. Certain payments to Contractor may be retained until Owner receives Operations Manual in good order as specified.

1.19 RECORD DRAWINGS

- A. The Contractor shall provide "as built" record shop drawings including any late changes or adjustments which occur as corrections to punch list items or as change orders after Substantial Completion of Contract. As-Builts shall be in the form of a PDF file designed to print to 24x36. At Substantial Completion of Contract, the Contractor shall prepare a complete set of their shop drawings for incorporation into the Operations Manual.
- B. Certain payments to the Contractor may be retained until Owner receives the Record Drawings in good order as specified.

1.20 GUARANTEE AND WARRANTY

- A. Provide a one (1) year written guarantee covering all labor, materials and workmanship incorporated into the work. Warranty shall commence from date of Owner acceptance. Indicate date of expiration on warranty.
- B. Carry out all warranty work with no additional cost to Owner for any parts, labor, or transportation. Provide warranty replacement equipment within 24 hours of notice by Owner. Provide on- site warranty repair within 2 days of notice.
- C. If a particular component, part or piece of equipment fails more than three times during the warranty period; the failure shall be deemed due to an error in product engineering. In that case, within 24 hours of notice by Owner, take whatever action is necessary to modify or correct the defect by design change. Provide temporary backup or replacement equipment within 24 hours of notice. Provide permanent, redesigned, replacement equipment on a work schedule that does not conflict with rehearsals or performances.
- D. Warranty on components and equipment modified or replaced due to error in product engineering shall be same as for original components and equipment and shall commence from date of installation of modified or replaced component or equipment.
- E. At a period six months after Owner acceptance, provide labor to inspect the Stage Lighting system and make any necessary adjustment/repairs. Submit a written report

describing the general condition of the rigging system and any required adjustment/repairs.

1.21 SERVICE AGREEM

- A. As part of the bid, provide a service agreement for a 3-year and 5-year term, including: costs, all included services and a copy of the Contractor's standard service agreement for Owner review.
- B. The proposed service agreements shall be separate from the lump sum bid and identified as Alternates.
- C. Upon project completion, the Owner may decide to enter into one of the service agreements.
- D. Contractor shall hold the service agreement price for the duration of the Project.

1.22 TRAINING

- A. Provide training to Owner's operating personnel on operation and care of system for not less than two (2) four (4) hour sessions. Instruction shall include, but not be limited to: operation of the systems and equipment, proper maintenance of all systems, trouble-shooting, replacement procedures for user replaceable parts, and operating procedures to obtain maximum usage of systems.
- B. Deliver all copies of approved Operations Manual to Owner prior to first instruction session and review it as part of that session. Owner shall schedule training session at their convenience.
- C. Instruction must be by qualified expert operators who have actual experience with systems in performance conditions. Submit instructor's qualifications to Consultant for approval at least 2 weeks prior to Completion Checkout.

PART 2 – PRODUCTS

2.2 STAGE LIGHTING

- A. All products and components to be new and unused.
- B. In addition to the items specified, provide any other devices, software, etc. necessary for full operation of the stage lighting system.
- C. Provide equipment and systems as noted on the TE-series drawings.
- D. Provide any equipment, sub-system, device(s) required, but not necessarily described in this section and the TE-Series drawings for full and a complete functioning stage lighting system.

PART 3 - EXECUTION

3.1 STAGE LIGHTING

- A. Assume responsibility to provide equipment and instruction for complete and working installation of all equipment and systems specified in this section, coordinated with work of all other subcontractors.

3.2 COORDINATION WITH OWNER AND CONSULTANT

- A. CONTRACTOR shall submit all drawings, schedules, and other communications relating to work of this section as directed.

3.3 ENVIRONMENTAL CONDITIONS

- A. Ship Theater Equipment to site only after notification by GC that storage facilities are available to protect equipment prior to installation, as described below. Equipment to be installed only when site conditions provide mechanical, electrical, and weather protection for each class of equipment, as described below.

- B. Pack all equipment in sturdy containers to provide mechanical protection during shipping and storage. Provide padding as necessary to protect equipment from vibration and shock. Provide inner plastic sheeting to protect equipment from moisture and dust. Keep plastic covers on equipment until such time as installation areas have been completed and conditions exist as indicated below.

3.4 REVIEW OF FIELD CONDITIONS

- A. Confirm by site visit and by report from GC all field conditions that may affect manufacture and installation of the equipment prior to fabrication. Provide any additional hardware, panels and back boxes to accommodate field conditions. Submit all changes to equipment and mounting details to Consultant for review prior to fabrication.

3.5 INSTALLATION INSTRUCTION

- A. Provide specific, detailed direction to Electrical Contractor as required for proper installation of all Theater Equipment, coordinated with actual site conditions, as per Part 1 of this section.

- B. ITEMS PLACED AND ATTACHED TO EXISTING WORK
 - 1. Provide all items required to properly install and secure Theater Equipment in place.

3.6 ALTERATION OF EQUIPMENT DETAILS

- A. If any Theater Equipment or other related device requires relocation or change of mounting detail, and this fact is not known until after shipment due to sequence of work, modify equipment or provide new equipment to fit revised location or mounting detail. Notify Consultant of any such changes, and submit all changes to Consultant for review prior to fabrication.

3.7 WIRING

- A. CONTRACTOR shall describe to the EC appropriate length cable loops, terminations, etc.; or any other wiring procedure (beyond customary trade practice) required for successful operation.

3.8 MARKING

- A. All equipment shall be permanently and logically marked for ease of installation.

3.9 PAINTING AND TOUCH UP

- A. Provide paint and supplies to correct minor cosmetic damage to Theater Equipment. Ensure that all equipment is clean and in perfect condition at time of Completion Checkout.
- B. Repair or replace any equipment that has suffered non-cosmetic damage prior to time of Completion Checkout. Claims arising from repair or replacement of such damage shall be considered only after final acceptance of system by Owner.

3.10 CLEAN UP

- A. Clean all Theater Equipment of trash, dust and debris.

3.11 PROTECTION OF CONTROL EQUIPMENT

- A. Do use any Theater Equipment control devices intended for installation for the purpose of checking out wiring or circuitry prior to proper conditions existing on site, as specified above. Equipment may be used for such testing only in specific areas where such proper conditions exist.

3.12 ENGINEERING CHECKOUT

- A. Prior to energizing relevant Theater Equipment, perform complete system checkout to verify that all items are correctly installed and shall safely operate as specified herein.
- B. FIELD TESTING AND ADJUSTMENT
- C. Perform all tests and adjustments specified below upon completion of installation of Theater Equipment but no later than six weeks prior to Beneficial Occupation of facility by Owner.

3.13 TEST PROCEDURES

- A. Prior to Consultant's inspection perform all following tests:
 - 1. Inspect all device labels to ensure that devices are correctly and clearly labeled as specified and shown in drawings.
 - 2. Test all circuits for proper wiring, polarity, and connection and inspect for correct labeling.
 - 3. Test all power receptacles.
 - 4. Test all extension cables, adapters, etc.

5. Repair or replace any equipment that fails to conform to specification.
6. Upon completion of testing, Provide Owner, and Consultant a complete report on all field-testing and adjustment, certifying that system conforms to specification and that installation is complete and ready for inspection.

3.14 COMPLETION CHECKOUT

- A. Schedule inspection by Owner, and Consultant no earlier than upon receipt of above specified report, but no later than four (4) weeks prior to Beneficial Occupation of facility, or portion of facility containing Theater Equipment.
- B. At request of Consultant, repeat any and all test specified in "Field Testing and Adjustment" above in presence of Owner and Consultant.
- C. Should Owner or Consultant judge that any Theater Equipment fails to conform to specification, repair or replace that equipment within 15 days. Should work inspected not be substantially complete at time of Completion Checkout, complete that work and schedule a second checkout. Provide all equipment and personnel specified above.

3.15 FINAL SUBMITTALS

- A. After Completion Checkout, submit all of the following to the Owner:
 1. Receipts for delivery of uninstalled miscellaneous items, including all spare parts as detailed in Part 2.
 2. 1 hard copy and 1 pdf of the Operations Manual, as detailed in Part 1.
 3. Record Drawings, as detailed in Part 1.
 4. Guarantee and Warranty, as detailed in Part 1.
 5. Maintenance proposal, as detailed in Part 1

End of Section