

Section 116137 - Proscenium Fire Safety Curtain

PART 1 - GENERAL

1.1 SUMMARY

- A. Adjust, repair and replace select components of the existing fire curtain system as detailed in contract documents. . Retain Existing Curtain, Smoke Pocket, and Guide cables. .
- B. Section Includes:
  - 1. Provision of materials, components, modifications, assemblies, equipment and services as specified herein. These include:
    - a. Verification of site dimensions and conditions.
    - b. Submission of Shop Drawings signed and sealed by a licensed Professional Engineer experienced in work of similar nature and scope and licensed in the state of Installation.
    - c. Engineering of equipment and systems as required by the Contract Documents.
    - d. Manufacture of equipment and systems as required by the Contract Documents.
    - e. Scheduling, sequencing and coordination with other trades.
    - f. Site supervision of equipment and systems installation specified herein and elsewhere in the Contract Documents.
    - g. Testing and demonstration of equipment and systems as specified herein and elsewhere in the Contract Documents.
- C. Provide systems including:
  - 1. Electrically powered Proscenium Fire Safety Curtain including smoke pockets and controls.
  - 2. Additional support structures as required to meet the intent of the Contract Documents.
  - 3. Provide devices and components that are NEMA. and UL. approved for the applications. Wiring and electrical service shall be performed by a licensed electrician and conform to applicable codes.
  - 4. Provide electrical curtain release systems and associated detectors, control panels and components which are compliant with NFPA 72 National Fire Alarm Code for Local Fire Alarms and Remotes Stations Fire Alarm Systems and approved by Underwriters Laboratories for the applied use.
- D. Related Sections:
  - 1. Division 1: General and Supplementary Requirements.
    - a. 116100: Performance Machinery General Requirements.
    - b. 116133: Performance Manual Rigging

1.2 SYSTEM DESCRIPTION

A. Performance Requirements:

1. Section 116100 establishes minimum safety requirements for the system. Where Federal, State and Local Legislation address these topics, the more stringent requirements take precedence. Factors listed below in no way relieve this Contractor from the sole responsibility of providing safe systems. The minimum standards for construction and installation shall meet or exceed the requirements of the International Building Code (per project), NFPA 80 – 20 (2016), and ANSI E1.22 (2016) except as modified by these specifications. Where standards requirements conflict, the construction shall conform to the following order: Federal, State, and Local Legislation; Applicable Project Building Code; NFPA 80; ANSI E1.22; these specifications.
2. Configure the curtain to hang, in raised position, above the most critical sight line from the end seat of the first row of auditorium seats. Provide the smoke seals not more than 6" above the proscenium opening on the stage side of the proscenium wall in such a manner as to not interfere with the operation of the Proscenium Fire Safety Curtain. Configure to contact top seal and batten when curtain is in the lowered position.
3. As Alternate Provide a fixed speed hoist to raise the Proscenium Fire Safety Curtain under powered control and lower the curtain by both powered control or automatic release. An alternate hoist configuration will be acceptable at the discretion of the contractor's Professional Engineer, and as approved by the Architect provided it meets the intent of the Contract Documents.
4. The hoist shall achieve a 30 fpm. rate of speed when raising curtain. Provide the hoist in an electrohydraulic configuration so that the motive force is solely electrical and the hydraulic systems are employed solely to govern the descent speed of the Curtain. Provide the hoist with proper guarding and enclosures with appropriate access panels for maintenance; enclosure should not interfere with the operation of the fire safety curtain or any other system.
5. Provide a damper for checking the free emergency descent of the curtain. Calibrate damper to retard the last eight feet (8'-0") of fall as to require not less than five seconds and with the full closure cycle requiring not more than thirty seconds with the curtain settling to the floor without shock. Damper shall be activated by the number of hoist drum revolutions. Provide damper with calibrated signage to permit calculated adjustment of descent. The damper shall in no way prevent the Curtain from achieving a complete closed seal.
6. Secure the hoist to withstand anticipated loads imposed by the system and as required by applicable codes, legislation and conventions. Do not interfere with or obstruct the operation or safety of any other systems present. Provide the hoist and mounting structure to minimize lateral and resultant forces developed by the system from being transmitted to the facility structure.

B. Provide assemblies, cable components, connections, equipment, hardware and linkages employed in supporting, in whole or in part, overhead loads that are rated and designed for that application. Base loading for each component on the maximum percentage of the capacity of the set in which the component is employed. Base the set capacity on the weight of the battens, curtain and supporting elements inclusive of an imposed wind load of two (2) pounds per square foot (95.8Pa) over the entire area of the curtain.

C. Provide mule blocks, rollers and guides as required to provide proper alignment and maintain allowable fleet angles.

- D. Provide systems designed to reflect safeguards and precautions related not only to normal use of the equipment under ideal operating and loading conditions but, additionally, to anticipate equipment misuse, human error, and misjudgment. Design and intent parameters set forth herein in no way relieve this Contractor from responsibility or liability arising from the Work.

### 1.3 INTEGRATION WITH BUILDING ALARM SYSTEM

- 1. Proscenium Fire Safety Curtain actuation by Fire Alarm
  - a. Confirm proper operation of building alarm system interface to actuate a fire curtain release only when alarm is triggered in the stage zone.
  - b. Unless specifically required by the Authority Having Jurisdiction, the Proscenium Fire Safety Curtain should not be actuated by an alarm initiated outside of the stage and/or audience zone.
  - c. Coordinate device actuation requirements with fire alarm contractor.

### 1.4 SUBMITTALS

- A. In addition to submittals required under Division 1, provide manufacturer's data and certification of compliance

### 1.5 WARRANTY

- A. Special Warranty:
  - 1. Warrant systems and equipment to be free of defective components, faulty workmanship and improper adjustment for a period of two years from the date of Final Acceptance. Paint and exterior finishes are excluded relative to failure due to unusual exposure. Replace items showing evidence of defective materials or workmanship (including installation workmanship) within thirty (30) days after notification. Make replacements without cost to the Owner. Rectify conditions that might present a hazard to human life, well-being and or property within 48 hours of notification.
  - 2. Designate warranties on manufactured equipment to the Owner on the date of system acceptance.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Provide the rigging systems from components (except where otherwise stated) that are the products of one of the following manufacturers:
  - 1. J.R. Clancy, Inc., Syracuse, NY.
  - 2. H&H Specialties Inc., South El Monte, CA.
  - 3. Texas Scenic, San Antonio, TX

B. Bearings:

1. Dodge/Reliance Electric Corp., Cleveland, OH
2. FAG Bearings Corp., Stamford, CT.
3. Timken Co., Canton, Ohio.

C. Cable and chain connection hardware:

1. Chicago Hardware and Fixture Company, Chicago, IL.
2. Columbus Mckinnon Corporation, Chain Division, Amherst, NY.
3. Cooper Industries, Campbel Chain Division, Inc., NC.
4. The Crosby Group, Inc., Tulsa, OK.

D. Compression sleeves:

1. Loos & Co.Inc., Naples,FL.
2. National Telephone Supply Company, Cleveland, OH.

E. Fire Curtain Control Panels:

1. Fire-Line Alarms, Northford, CT.
2. Honeywell, Inc., Morris Township, NJ
3. Notifier, Inc., Northford, CT.

F. Guide tracks:

1. Unistrut Coporation, Atkore Interational, Harvey, IL
2. Atlas Silk Division, H&H Specialties Inc. South El Monte, CA.
3. Automatic Devices Co. (ADC), Allentown, PA.

G. Wire Rope:

1. Refer to current QPL-83420 for qualification certified manufacturers.

H. Proscenium Fire Safety Curtain:

1. W.E. Palmer Company
2. Newtex Industries, Inc.
3. Thermotex Industries, Inc.

2.2 MATERIALS

- A. Pipe Battens: 2" nominal Schedule 40 Seamless Black Steel Pipe (ANSI B36.10-1970).

2.3 MANUFACTURED UNITS

- A. Blocks: Refer to Section 116100, Performance Machinery Basic Requirements for performance criteria.

- B. Drums and Sheaves: Refer to Section 116100, Performance Machinery Basic Requirements for performance criteria.
- C. Pipe Battens:
  - 1. Provide typical pipe battens of seamless black wrought steel pipe as specified in herein. Provide splices from sleeved tubing arranged so the spliced batten equals or exceeds the strength of the continuous batten material. Secure splices using removable, appropriately rated threaded fasteners in a fashion that no part of the fastener extends beyond the batten surface by more than 1/2". Arrange splices to ensure batten deflection in any span does not exceed the deflection of a continuous batten of equal span under the loading criteria specified herein..
- D. Batten Hanging Devices:
  - 1. Batten Clamps:
    - a. Provide connections to each lift line turnbuckles by removable steel clamps which encircle the complete circumference of the batten and allow for direct connection to the jaw of the turnbuckle. Employ appropriately rated fasteners with locking devices for connections.
    - b. Configure the devices to each resist the complete loads of both adjacent spans with the additional imposed impact factors. Configure the devices to resist rotation of the batten with a load of 30 pounds per linear foot of the longest adjacent span applied at 12 inches horizontally from the section's centroid.
    - c. Configure devices so that the bottom and sides do not exceed the diameter of the batten by more that one batten diameter. Configure devices so that no sharp edges or corners greater than 45 degrees are presented.
    - d. Mark clamps pursuant to OSHA 29 CFR 1926.251(a)(4).

## 2.4 COMPONENTS

- A. See Section 116100 for Additional Component Requirements.
- B. Rigging Lines:
  - 1. Suspend lifted elements by wire ropes, unless specified otherwise herein. Determine the classification of wire rope construction to suit the system operational requirements. Unless specifically required in the Contract Documents, the Contractor's engineer shall determine the classification.
  - 2. Employ continuous lines from the same spool/length, free of knots, splices or mechanical fasteners along their length unless specifically required otherwise in the Contract Documents. Do not employ damaged or deformed cables. Excluding prefabricated systems excluded, cut cable at the site from the manufacturer's spool.
  - 3. Wire Rope: Refer to Section 116100.
- C. Chains: Proscenium Fire Safety Curtain Safety Chains: 7/32" min. Grade 80 Chain, or meeting the requirements of Trim Chain as specified herein.
- D. Fusible Links: Double eye links for loads up to 30 lbs at 160oF. Underwriters Laboratories approval required.

2.5 FACTORY FINISHING COLORS:

- A. Finish all non bearing ferrous metals in enamel red, excepting smoke pockets which shall be painted flat black.
- B. Do not paint cable bearing surfaces, fasteners, aluminum or galvanized materials and products.

2.6 SIGNAGE:

- A. Provide signage per Section 116100.
- B. Provide signage affecting safety in accordance with ANSI Z535.2 Environmental And Facility Safety Signs including annexes.
- C. Signage shall be legible both in construction and grammar. Sign surfaces and characters shall be textured or otherwise treated to minimize glare and veiling reflectance.
- D. Provide signage in English.
- E. Employ printed or stenciled characters. Handwritten characters are not acceptable.
- F. Wall mount diagrams depicting the system layout and maximum load limitations (drawn not less than 1/4"=1'-0") in a protective transparent faced frame on the stage wall near the locking rail and near the loading gallery entrance as to be plainly visible, and as not to interfere with the operation of the system.
- G. Provide, adjacent to each Proscenium Fire Safety Curtain pull ring box, in plain view, a painted metal sign with 3" high white sans serif characters on a red background; bearing the inscription: "IN CASE OF FIRE, PULL RING TO LOWER PROSCENIUM FIRE SAFETY CURTAIN" with an indicator clearly pointing to the location of the ring. Character minimum height 0.840" sans serif.
- H. Label the Proscenium Fire Safety Curtain control box: "PROSCENIUM FIRE SAFETY CURTAIN HOIST CONTROL IN CASE OF EMERGENCY USE PULL RING BOXES" in white sans serif characters on a red background. Character minimum height 0.840" sans serif.
- I. In locations agreed to by the Architect, provide signage at the lock rail, loading gallery, grid iron identifying all pertinent hazards, avoidance procedures and consequences. In addition to safety requirement.

2.7 SOURCE QUALITY CONTROL

- A. Work on the systems may be reviewed at the point of manufacture a minimum of one time during fabrication. This review will occur during the final factory checkout prior to shipping, unless the Manufacturer and Architect agree on a more advantageous inspection date.

2.8 SUPPLEMENTARY

- A. Furnish equipment and hardware in addition to the items specified previously that are necessary to provide a fully working system in conformance with the intent of the Contract Documents.

### PART 3 - EXECUTION

#### 3.1 ERECTION, INSTALLATION AND APPLICATION

- A. Refer to Section 116100 for execution requirements
- B. Install curtain, track, winch, and other required components.

#### 3.2 CONSTRUCTION/RIGGING

- A. Rig other loads as specified in the Contract Documents.
- B. Drum and/or Block Connection:
  - 1. Align drums and/or blocks as required by the Drawings and accompanying schedules. Conform alignment to the requirements set forth herein.
  - 2. Secure drums and/or blocks as per accepted mounting design. Where connection device contact is not uniform, employ shims. Perform mounting to ensure blocks are securely attached to the support structure and are immobile except by intentional user action.
  - 3. When used, configure underhung loft block alignment to use the idler sheaves in logical sequence.

#### 3.3 ADDITIONAL INSTALLATION

- A. Signage: Install signage employing mechanical fasteners.

#### 3.4 FIELD QUALITY CONTROL

- A. Reviews:
  - 1. Final review will be made by the Architect or his appointed representative, following receipt in writing or notification from this Contractor that the installation is completed. If review reveals details of construction, fabrication, or installation not in strict accord with the Contract Documents, approval will be withheld and Contractor shall be given thirty days to replace the rejected items with those conforming to specification requirements. In addition to the final review of various equipment components the right of review is reserved during the course of the installation. The Architect or his appointed representative and will be allowed access to materials at the site for eventual incorporation in the work. Preliminary visits shall not be construed as eliminating the possible rejection of various components during the final review detailed above.
  - 2. The completed installation of rigging equipment with draperies properly installed shall be tested and operated for the acceptance by the Architect and Authority having jurisdiction by the Contractor prior to acceptance.
  - 3. At the time of inspection, provide written, notarized certification that materials and methods employed, including connections, meet or exceed the requirements of the Contract Documents and applicable laws and regulations.
  - 4. The Contractor is completely and solely responsible for any testing required by the Architect and authorities having jurisdiction to ensure compliance with the Contract Documents and applicable laws and regulations.

3.5        **MANUALS, DEMONSTRATION AND INSTRUCTION**

- A.    Provide a total of four (4) hours of training on this equipment.
- B.    Provide 3 copies of an instruction and maintenance manual which includes:
  - 1.    Contractor's and principal Manufacturer's contact information.
  - 2.    System description.
  - 3.    Safety instructions and warnings.
  - 4.    Operation Instructions.
  - 5.    Maintenance and inspection instructions, procedures and schedules.
  - 6.    Relevant Material Data Safety Sheets.
  - 7.    Product literature for components employed in the system.
  - 8.    Reduced shop drawings of this part of the project.
  - 9.    Recommended spare parts listing.
  - 10.   Final inspection reports.

**END OF SECTION 116137**