

SECTION 116143

STAGE CURTAINS

PART 1 – GENERAL

1.1 SUMMARY

- A. Section includes:
 - 1. Stage Curtains, Scrims, and Drops
 - 2. Draw-curtain tracks/
 - 3. Curtain Rigging

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, include General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product and the following:
 - 1. Tracks: Capability of each track to support the weight and operation of curtains that it supports.
- B. Shop Drawings: For each installation and for special components not dimensioned or detailed in manufacturer's product data.
 - 1. Include plans, elevations, sections, and attachment details of curtains.
 - 2. Include fabric assembly and hanging details.
 - 3. Dimension operating clearances.
 - 4. Include documentation of capacity of each batten, track, attachment, and rigging component to support loads.
 - 5. Points of attachment for proscenium curtain and the corresponding static and dynamic loads imposed on structure.
 - 6. Locations of equipment components, switches, and controls. Differentiate between manufacturer-installed and field-installed wiring.
 - 7. Wiring Diagrams: For power, signal, and control wiring.
- C. Samples for Initial Selection: For each type of stage curtain indicated. Include color charts showing full range of colors, textures, and patterns available, together with 12-inch- square Sample (any color) of each fabric type and seam.
- D. Delegated-Design Submittal: For Stage-curtain systems and attachments to structure, including analysis data signed and sealed by the qualified professional engineering responsible for their preparation.

1.5 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Reflected ceiling plans and other details, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:
 - 1. Structural members to which tracks, battens, and other stage-curtain equipment will be attached.
 - 2. Locations of lighting fixtures and cabling, ductwork, piping, and sprinklers. Rigging equipment for stage equipment.
 - 3. Access panels.
- B. Qualification Data: For Installer.
- C. Product Certificates: For the following, from manufacturer:
 - 1. Fabric: Provide name of flame-retardant chemical used, identification of applicator, treatment method, application date, allowable life span for treatment, and details of any restrictions and limitations.

1.6 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For stage curtains and rigging to include in operation and maintenance manuals.

1.7 QUALITY ASSURANCE

- A. Stage Curtain Installer's Qualifications.
 - 1. Firm experience in provision of systems similar in complexity to that of the requirements of the project, and meet the following:
 - a. No less than ten years' experience with equipment and systems of the specified types under the same business name.
 - b. Experience with at least five comparable scale projects within the last two years.
 - c. Employs only fully trained stage riggers and mechanics for the erection of stage equipment.
 - d. The stage riggers will be completely familiar with the type of equipment to be installed. A competent and knowledgeable Job Superintendent will always be on the job when work is in progress.
 - e. Installation will be supervised by an ETCP certified rigger.
 - f. Maintain a fully staffed and equipped service facility.
 - g. Contractor shall attend pre-installation meetings to coordinate with other trades as required.

1.8 FIELD CONDITIONS

- A. Environmental Limitations: Do not install stage curtains until spaces are enclosed and weathertight, wet work in spaces is complete and dry, work at and above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.
- B. Field Measurements: Verify locations of supporting structural elements and construction contiguous with stage curtains and rigging by field measurements before fabrication and indicate measurements on Shop Drawings.

1.9 WARRANTY

- A. Manufacturer's Special Warranty: Manufacturer agrees to repair or replace components of stage-curtain systems that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, faulty operation of rigging.
 - 2. Warranty Period: One year from date of Substantial Completion. PART

2 - PRODUCTS

2.1 STAGE-CURTAINS

- A. Description: Complete stage curtains, with necessary accessories for support and operation.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Georgia Stage, LLC.
3765 Peachtree Crest Dr, Duluth, GA 30097
Telephone: 770-931-1600
Approved to supply stage drapery fabric and rigging hardware
 - b. NorthEast Stage, LLC.
620 Park Ave, Freehold, NJ 07728
Telephone: 732-731-2201
Approved to supply stage drapery fabric and rigging hardware
- B. Source Limitations: Obtain stage-curtain systems from single manufacturer. Obtain each color, grade, finish, type, and variety of fabric from single source with resources to provide materials of consistent

quality in appearance and physical properties.

2.2 PERFORMANCE REQUIREMENTS

- A. Fire-Test-Response Characteristics: Provide stage curtains meeting the following requirements as determined by testing identical products by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.
 - 1. Flame-Propagation Resistance: Passes NFPA 701.
 - a. Permanently attach label to each fabric of curtain assembly indicating whether fabric is inherently and permanently flame resistant or is treated with flame-retardant chemicals and whether it requires retreatment after cleaning or after a designated time period of use.
 - b. Permanently attach 12-inch-square swatch of same fabric and dye lot for each fabric of a curtain assembly to the back of assembly for the use as fire-resistance test strip.

2.3 CURTAIN FABRICS

- A. General: Provide fabrics inherently and permanently flame resistant or chemically flame resistant by immersion treatment according to performance requirements indicated. Provide fabrics of each type and color from same dye lot.
 - 1. Main and Valances
 - a. Polyester Velour: Napped fabric of 100 percent polyester weighing not less than 25 oz./linear yd.; inherently and permanently flame resistant; 54-inch minimum width.
 - b. Basis of Design: KM Fabrics, Inc; Charisma IFR Velour
 - 2. Borders, Legs, and Travelers
 - a. Polyester Velour: Napped fabric of 100 percent polyester weighing not less than 22 oz./linear yd.; inherently and permanently flame resistant; 60-inch minimum width.
 - b. Basis of Design: Georgia Stage, LLC; Valdosta IFR Velour
 - 3. Cyclorama
 - a. Polyester Muslin: Seamless 100 percent polyester; inherently and permanently flame resistant.
 - b. Basis of Design: Georgia Stage, LLC; Poly Muslin IFR
 - 4. Scrim
 - a. Polyester Sharkstooth Scrim: Seamless 100 percent polyester; inherently and permanently flame resistant
 - b. Basis of Design: Georgia Stage, LLC; Sharkstooth Scrim IFR
 - 5. Color/Texture/Pattern: As selected by Architect from manufacturer's full range

2.4 CURTAIN FABRICATION

- A. General:
 - 1. Affix permanent label, stating compliance with requirements of authorities having jurisdiction, in accessible location on fabric not visible to audience.
 - 2. Provide vertical seams unless otherwise indicated. Arrange vertical seams so they do not fall on faces of pleats.
 - 3. Do not use fabric cuts less than one-half width.
 - 4. Orient velour fabric with the fabric nap down.
 - 5. Mark centerline of curtain at the top webbing and a white tie line to the corresponding grommet.
- B. Vertical and Top Hems: Machine sew hems as follows unless otherwise indicated:
 - 1. Vertical Hems: Minimum 2 inches wide, with not less than a 1-inch tuck and with no selvage material visible from front of curtain. Sew open ends of hems closed.
 - 2. Turnbacks: Provide leading-edge turnbacks for traveler curtains, formed by folding back not less than 12 inches of face fabric, with not less than a 1-inch tuck, and vertically secured by sewing.
 - 3. Top Hems: Reinforced by double-stitching 3-inch-wide, heavy, poly webbing to top edge on back

side of curtain with not less than 2 inches of face fabric turned under.

- C. Fullness:
 - 1. 50 Percent Fullness: Provide fullness, exclusive of turnbacks and hems, by sewing additional material into 3-inch double-stitched, flat, box pleats spaced at 12 inches o.c. along top hem reinforcement
- D. Grommets: Brass, No. 4.
 - 1. Black Curtains: Provide brass or aluminum grommets with black finish.
 - 2. Pleated Curtains: Center grommets on each box pleat and place 1 inch from corner of curtain.
 - 3. Curtains attaching to tracked systems, s-hooks shall be provided for each grommet.
 - 4. Curtains attaching to battens, 36" long black cotton tie line fastened to each grommet.

2.5 SCRIMS AND DROPS

- A. General:
 - 1. Affix permanent label, stating compliance with requirements of authorities having jurisdiction, in accessible location on fabric not visible to audience.
 - 2. Provide seamless unless otherwise indicated.
- B. Drops:
 - 1. Muslin fabric, sewn flat, with selvage to the rear.
 - 2. Provide 6-inch pipe pocket at bottom with 6-inch flap of same fabric in front of pocket.
 - 3. Double-stitch 3-1/2-inch jute webbing at top with not less than No. 4 brass grommets spaced at 12 inches o.c. and 1 inch from corner of curtain.
 - 4. Provide not less than 2-inch double-folded side hem and 4-inch bottom hem.

2.6 CURTAIN ACCESSORIES

- A. S-Hooks: Manufacturer's standard heavy-duty plated-wire hooks, not less than 2 inches long.
- B. Snap Hooks: Manufacturer's standard heavy-duty hooks, sewn to top edge of curtain.
- C. Tie Line: Manufacturer's standard 1/8" tie line

2.7 STEEL CURTAIN TRACK

- A. Steel Track: Roll-formed, galvanized, commercial-quality, zinc-coated steel sheet, ASTM A 653/A 653M; G60 coating designation; with continuous bottom slot and with each half of track in one continuous piece; black paint finish; complete with necessary accessories for support and operation.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. H & H Specialties Inc.; 400 Series Heavy-Duty Straight Track.
 - 2. Steel Thickness: As recommended by manufacturer for loads and operation.
 - a. Heavy Duty: Minimum 14 Gauge.
- B. Clamp and Bracket Hangers: Steel clamps and brackets of sufficient strength required to support loads for attaching track to overhead support at manufacturer's specified spacing.
- C. Track-Lap Clamp: Metal to match track channel for attaching two tracks at center overlap.
- D. Heavy-Duty Track System: Equip track with heavy-duty components as recommended by manufacturer for loads and operation. Provide end stops for track.
 - 1. Curtain Carriers: Standard carriers of plated steel with a pair of polyethylene-tired ball-bearing wheels riveted parallel to body. Equip carriers with heavy-duty, plated-steel swivel eye and trim chain for attaching curtain snap or S-hook. Provide quantity of curtain carriers sufficient for track length, to suit curtain fabrication.
 - a. Master Curtain Carriers: One master carrier, for each leading curtain edge, of plated steel with two pairs of polyethylene-tired ball-bearing wheels and with two-line guides per carrier.
 - 2. Pulleys: One dead-end, single-wheel pulley; one live-end, double-wheel pulley; and one adjustable pulley to maintain proper tension on operating line; each with not less than 4-inch molded-nylon or glass-filled-nylon-tired ball-bearing sheaves enclosed in steel housings. Provide pulleys with steel housing finished to match track and with bracket for securing off-stage curtain end.

- 2.2 Battens
 - A. All battens are to be 1 ½" SCH. 40 Steel Pipe
 - B. Battens must be supported by ANSI compliant hanging points no further than 10' in spacing.
 - C. Battens shall not exceed a distance of more than 2' after the outside hanging points.
 - D. Battens may be joined by 18" internal splicing sleeves, whose strength is the at least the same as the un-spliced pipe, secured in place by bolting and/or plug welds.
- 2.8 CURTAIN RIGGING
 - A. Supports, Clamps, and Anchors: ASTM A 153/A 153M, Class B galvanized sheet steel in manufacturer's standard thickness, galvanized after fabrication.
 - B. Trim and Support Chain: ¼" Grade 30 Proof Coil Chain.
 - C. Inserts, Bolts, Rivets, and Fasteners: Manufacturer's standard corrosion-resistant units.

PART 3 – EXECUTION

- 3.1 EXAMINATION
 - A. Examine areas and conditions, with Installer present, for compliance with requirements for supporting members, blocking, installation tolerances, clearances, and other conditions affecting performance of stage-curtain work.
 - B. Examine inserts, clips, blocking, or other supports required to be installed by others to support tracks and battens.
 - C. Proceed with installation only after unsatisfactory conditions have been corrected.
- 3.2 INSTALLATION, GENERAL
 - A. Install stage-curtain system according to curtain and track manufacturer's written instructions.
 - B. Stage draperies shall be installed near the end of the installation when chances of damage from other work are reduced. Stage area shall be broom clean with no further construction.
- 3.3 CURTAIN INSTALLATION
 - A. Track Hung: Secure curtains to track carriers with S-hooks and/or snap hooks.
 - B. Batten Hung: Secure curtains to battens using a 24" long black cotton tie.

END OF SECTION 116143