SECTION 116143

THEATRICAL DRAPERY

PART 1 - GENERAL

1.1 SUMMARY

A. The work in this section includes Theatrical Draperies (TD) and equipment within the following spaces and associated support areas:
1. Proscenium Theatre
2. Black Box Theatre

B. Section Includes
1. Major Systems and Equipment: furnish the following major elements and associated accessories:
   a. Stage masking draperies: borders, legs and side tabs
   b. Scrims
   c. Cycloramas
   d. Bottom pipes
   e. Drapery storage bags/hampers
   f. Fabric remnants from the manufacture of the theatrical draperies
2. Provide all materials, components and services required to provide the work as specified herein, elsewhere in the project documents, and/or as shown on related drawings.
3. Consult and coordinate with other affected work and contractors throughout the course of the work contained herein.

C. Related Requirements
1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specifications apply to this Section.
2. Examine Contract Documents for requirements that directly affect or are affected by work of this Section. A list of those Documents and Sections includes, but is not limited to the following:
   a. Division 01 – General Requirements
   b. Division 03 – Concrete
   c. Division 04 – Masonry
   d. Division 05 – Metals
   e. Division 09 – Finishes
   f. Division 11 – Equipment
      1) Section 116133 – Theatrical Rigging
      2) Section 116163 – Theatrical Lighting Dimming and Control
      3) Section 116183 – Theatrical Audio Video Systems
   g. Division 21 – Fire Suppression
   h. Division 22 – Plumbing
   i. Division 23 – Heating, Ventilating and Air Conditioning

1.2 PRICE AND PAYMENT PROCEDURES

A. Refer to Division 01 - General Requirements for information regarding price and payment procedures.
B. Unit Prices
1. Provide unit prices per the list of items in Appendix A.

1.3 REFERENCES

A. Abbreviations:
1. The following abbreviations and acronyms are relevant to this Section and are in addition to those defined in Division 01 – General Requirements:
a. NFPA: National Fire Protection Association

B. Definitions:
1. The following definitions are relevant to this Section and are in addition to those defined in Division 01 – General Requirements:
a. In all cases where a device or a part of equipment is referred to in a singular manner within the contract documents, it is intended that such a reference shall include all devices required to complete the fabrication in accordance with the project documents.
b. "Architect": All references to the "Architect", Hamilton Anderson Associates, will refer to the process by which the indicated action or decision regarding the work in this section will be administered. All such actions shall be initiated with or by the Architect, who will disseminate all pertinent information and documents to, as well as coordinate all efforts and site visits with, the Theatre Consultant and all other project consultants who may have design responsibility relating to the work in this section.
c. "Theatre Consultant": Auerbach + Associates, Inc. (d.b.a. Auerbach Pollock Friedlander). The Theatre Consultant will be party to all actions and decisions regarding the work in this section.
d. "Other Project Consultants": Acoustical Consultant, Electrical Engineer, Structural Engineer, or Mechanical Engineer as is applicable to a particular issue.
e. "Contractor": Manufacturer / Fabricator responsible for the fabrication of the work contained in this section.
   1) Contractors involved with other work shall be indicated with a specific trade preceding the word "Contractor" (i.e. General, Electrical, etc.).
f. "Owner": Authorized personnel representing Wayne State University.
g. "Furnish": Purchase and/or fabricate and deliver to project site: 75 Canfield Detroit, Michigan 48202.
h. "Provide": Furnish.

C. Reference Standards:
1. Reference Division 01 for general project references and standards.
2. References to codes, standards, specifications and recommendations of technical societies, trade organizations and governmental agencies will refer to the latest edition of such publications adopted and published prior to submittal of the bid. All such codes and standards will be considered a part of this specification as if they were fully included herein.
3. If an applicable code or standard permits work of lesser quality or extent than this specification, then this specification and the related drawings will govern.
4. Comply with national, state and local codes.
5. Comply with national, state and local labor regulations and requirements.

1.4 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
1. The Contractor is required through drawings, memos and meetings to properly coordinate the work with the other sections as necessary to complete the work of this section.

1.5 ACTION SUBMITTALS

A. All submittals shall be submitted in accordance with Division 01.

B. All submittals shall be submitted in a timely manner, allowing sufficient time for adequate review and possible re-submittals without jeopardizing the project schedule.

C. Submittals will be reviewed, accepted and field dimension verified prior to proceeding with the fabrication of the work in this section.

D. All submittals shall leave space available for review stamps and comments.

E. The Architect and Theatre Consultant shall only mark one set of drawings per submittal with comments. Any additional sets of drawings or product data shall be returned unmarked.

F. Provide insurance against loss or damage during shipment. Furnish certifications of such coverage to the General Contractor not less than 60 calendar days prior to the shipment of any equipment.

G. Product Data:
   1. Where standard manufacturer parts are used, submit current product literature describing component, manufacturer’s recommended applications, load ratings, safety factors and dimensions. The data shall include all information which indicates compliance with the specifications herein.
   2. Clearly indicate specific component and applicable options.

H. Shop Drawings
   1. Include a cover sheet with a drawing index including the sheet number and title for each sheet in the set.
   2. Provide 1/4” = 1'-0” plans of all locations which contain equipment in this contract. Show all equipment properly located, dimensioned and labeled. Note all work by others in the vicinity, which may affect work in this contract.
   3. Provide indications by arrow and boxed caption of all variations from contract drawings and specifications, except where variation is indicated as acceptable.
   4. Provide a full Bill of Materials to be supplied, including quantities, manufacturer, manufacturer’s part numbers, etc. Provide an inventory of all draperies to be supplied, indicating fabric type, fullness, edge finish, color and size.

I. Samples
   1. Submit sample items for approval within 14 days of Architect’s written request. These items may include, but are not limited to:
      a. Full bolt-width (54”) by 36-inch “quality” samples and color line swatches for all fabrics to be selected “by Architect”. These samples will be approved and all colors selected prior to shop drawings submittals.
      b. Samples of standard hooks, swivels, ties and hardware.
      c. Samples of drapery tracks and associated hardware.

J. Certificates
   1. Provide manufacturer’s certificates stating materials meet fire performance characteristics as specified herein.
1.6 CLOSEOUT SUBMITTALS

A. Project Record Documents:
   1. Submit documents in accordance with Division 01 – General Requirements.
   2. At the time of owner turnover, submit three (3) copies of parts lists and maintenance instruction sheets.
   3. Within 60 days of the acceptance testing, submit one (1) set of reproducible “as built” inventories of all draperies. These inventories shall include information as to the method used to flameproof each item.
   4. Submit operation and maintenance manuals with the “as built and approved” drawings. Each manual shall be bound in an individual binder with the project name on the front cover and system identification on the spine. The manuals shall include:
      a. Complete parts list for all equipment and telephone numbers for the authorized parts and service distributors.
      b. Instructions as to the safe operation for all equipment.
      c. Recommended maintenance schedule for component parts that may need periodic replacement.
      d. Recommendations for cleaning, maintaining and touch-up of all finished surfaces.
      e. Provide specific recommendations for cleaning drapery fabric, including precautions against materials and methods which could damage drapery fabric.
   5. Where specific elements do not require manuals, instruction sheets as to care and handling shall be provided.
   6. Certificates of flame resistance as required herein.
   7. Warranties as required herein.

B. Submit verification that all punch list items have been rectified. Such written verification will be required for project closeout and initiation of the warranty period.

C. The record documents shall be reviewed by the Architect and all modifications to the documents stemming from this review shall be made as required.

D. Above submissions are required as a condition for final approval of the work.

1.7 MAINTENANCE MATERIAL SUBMITTALS

A. Extra Stock Materials:
   1. Deliver all fabric remnants from the manufacture of the theatrical draperies to the Owner.

1.8 QUALITY ASSURANCE

A. Regulatory Requirements:
   1. Refer to Division 01 – General Requirements.

B. Qualifications:
   1. Manufacturers
      a. The Manufacturer shall own and operate their own manufacturing facility for the fabrication of stage curtains and draperies, and be regularly engaged in the fabrication of such equipment. Fabrication of such equipment shall comprise no less than 90% of the Manufacturer’s business.
      b. The Manufacturer shall have been continuously engaged in the fabrication of theatrical draperies for no less than five years.
   2. Contractors
The systems and equipment under this Section shall be provided through a single pre-approved Contractor who is a factory authorized dealer, integrator and servicer of all equipment specified herein and meets the following requirements.

The Contractor shall have been in the theatrical drapery and installation business continuously for no less than five years and shall have provided complete engineering and installation services on a minimum of five projects of similar scope and complexity in the past five years.

Project Manager: The Contractor's Project Manager shall be qualified and have experience in projects of similar size and scope. The Project Manager shall have binding authority to represent and act for the Contractor and Manufacturer of this equipment. The Project Manager shall be the primary conduit for all information between the supplier of this equipment and the General Contractor. All information given to the Project Manager shall be considered as given to the Contractor.

The Contractor shall have, at the time of bid, a current contractor's license and shall know, understand, and have the required documentation to work in the State of Michigan. This license shall be maintained throughout the course of the work of this contract.

Contractor is responsible for the complete design and engineering of all systems described herein. Contractor shall confirm project details and, if necessary, suggest modifications to the criteria established herein in order to maintain the design intent.

Errors and omissions within the Contract Documents shall not relieve the Contractor and the General Contractor of the responsibility for providing a properly functioning the system as described herein.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Delivery, storage and handling shall be coordinated with the Owner and General Contractor and shall meet all requirements described in Division 01.

B. Packing, Shipping, Handling, and Unloading
   1. All equipment shall be appropriately and substantially packed for shipment.
   2. All equipment containers shall clearly indicate the equipment contained, “front”, “top”, “fragile”, the project name, and theatre site allocation. Include packing and shipping lists for each container.
   3. All drapery shall be boxed in solid plywood crates and shipped on pallets. In no case shall the drapery itself contact any slatted surfaces during shipping.
   4. All required weights and bottom pipe to be shipped separately from draperies.
   5. All shipping costs to the job site are the responsibility of the Contractor. The shipping method/company is at the total discretion of the Contractor in order to meet the published project schedules.

C. Acceptance at Site
   1. Coordinate responsibility for acceptance of material and equipment at job site with the General Contractor.
   2. The Contractor shall be responsible for acceptance of the theatrical draperies and components at the job site, confirming that all quantities and counts are correct and for keeping accurate logs and records of such information.

D. Storage and Protection
   1. Upon delivery, the materials shall be stored under cover in a dry and clean location, off the ground. Delivered materials which are damaged or otherwise not suitable for installation shall be removed from the job site and replaced with acceptable materials.
   2. Replace, at no additional expense to the Owner, all equipment and materials which are damaged during storage or handling.
1.10 WARRANTY

A. Comply with the warranty requirements of Division 01 and the following.

B. The Contractor shall warrant materials and workmanship of systems and equipment provided as free of defects. The Contractor shall guarantee in writing the repair or replacement within 30 days of any item found defective during a period of one (1) year following date of final acceptance. Ordinary wear and defects due to improper usage are excepted.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. To establish comparative standards of quality, the Contractor may provide drapery as manufactured by the following:

   Gerriets International, Inc.
   130 Winterwood Avenue
   Ewing, NJ 08638
   Tel: (609) 771-8111

   iWeiss
   815 Fairview Avenue, #10
   Fairview, NJ 07022
   Tel: (888) 325-7192

   Pook Diemont & Ohl / Texas Scenic
   701 East 132nd Street
   Bronx, NY 10454
   Tel: (718) 402-2677

   Rose Brand
   4 Emerson Lane
   Secaucus, NJ 07094
   Tel: (800) 223-1624

   Stage Decoration and Supplies
   3519 Associate Drive
   Greensboro, NC 27405
   Tel: (336) 621-5454

B. Substitutions
   1. All requests for variations from the specified materials and products will be reviewed by the Architect according to the procedures outlined in Division 01.
   2. All requests for substitutions must be submitted in a timely manner, so as not to adversely impact the project schedule.
   3. Substitutions will only be accepted if, in the opinion of the Architect, the product is an equal to the specified product. No substitutions may be made without written acceptance from the Architect. All substitutions made prior to this acceptance are at the sole risk of the Contractor.
   4. A substitution must be a product of equal design, construction and performance. The Contractor must submit all pertinent information required to substantiate that the product is equal. The Contractor must submit all additional information, including test data, which
may be requested order for the Architect to fully evaluate the substitution. The burden of proof is solely on the Contractor.

5. All additional expenses of any kind with respect to substitution(s) shall be borne by the Contractor. This shall include, but not be limited to, all fees and expenses incurred by the Architect and other related Consultants for evaluation of the substitution and subsequent integration into the project should the substitution be taken and/or additional costs of other contractors related to the substitution(s).

2.2 SYSTEMS DESCRIPTION

A. The following performance spaces shall contain the following major system components listed below and as shown on the TD-series drawings:

1. Proscenium Theatre
   a. Stage Masking Draperies
      1) Legs: velour curtains hung from system pipe battens
      2) Borders: velour curtains hung from system pipe battens
   b. Scrim
      1) Seamless black sharkstooth scrim hung from system pipe battens
   c. Cyclorama
      1) RP Cyc: White Rear Projection Screen hung from system pipe batten
   d. Electrics heat resisting borders
   e. Bottom Pipe
   f. Heavy-duty canvas storage bags

2. Black Box Theatre
   a. Stage Masking Draperies
      1) Legs: velour curtains hung from dead hung pipe battens
      2) Borders: velour curtains hung from dead hung pipe battens
      3) Side tabs: velour curtains hung from traveler track at stage sides
   b. Scrim
      1) Seamless white sharkstooth scrim hung from system pipe battens
   c. Cyclorama
      1) White leno-cloth cyclorama hung from system pipe batten
   d. Bottom Pipe
   e. Heavy-duty canvas storage bags

B. Refer to the drapery schedules and project drawings for drapery requirements and quantities.

2.3 MATERIALS

A. General

1. All equipment and components shall be new and complete. No used or reconditioned equipment shall be acceptable unless otherwise noted.
2. In all cases, fabrics are to be “first quality”. In no case shall “seconds” or re-dyed fabric be acceptable.
3. All velour fabric to be free of crush marks, nap irregularities, and any other abnormal markings.
4. All variations from the specified materials and product must be approved by the Architect and Theatre Consultant.

B. Dyeing and Flameproofing:

1. Fabrics shall be vat-dyed with no variation of color or pigment impregnation. There shall be no evidence of streaking or color variation. Verification of fabric quality is the responsibility of the fabricator prior to sewing.
2. Materials shall be either IFR polyester or through-flame retarded to conform to local, state, and national codes. Affidavits from fabric manufacturer, jobber or other agent required to attest flame resistance of the fabrics and methods used shall accompany drapery upon delivery. Duplicate copies shall be sewn to a normally accessible but hidden corner of each piece of drapery goods.
   a. Provide a 100 square inch cutaway sample of drapery fabric and lining sewn adjacent to flame resistance certification on rear for use in Fire Marshall testing.
3. There shall be no chemical leach-out or crystallization from the flame-retardant process allowed. Flame retarding shall be done at the mill. No flame retarding shall be acceptable after drapery fabrication without prior approval.
4. Flame retarded fabrics shall be certified as tested to NFPA 701.

2.4 EQUIPMENT AND COMPONENTS

A. Stage Masking Draperies
1. The face material of the stage masking draperies shall meet or exceed the following criteria:
   a. 100% Inherently Flame Retardant (IFR) polyester velour
   b. Acceptable products:
      1) Rose Brand 25 oz. “Charisma”
      2) or approved equal
2. The color of all stage masking draperies shall be black.
3. Each panel finished without fullness. Space grommets 1'-0” on center unless otherwise indicated in Drapery Schedules.
4. Black-out drapery to be constructed in two panels for use as traveler. Continuous borders of lengths as indicated on drawings. All legs to be provided in pairs. Single panel masking curtains as indicated in the schedules.
5. Sew with nylon thread or cotton thread. Color to match face material. Thread shall have no apparent sheen with relationship to the velour.
6. All finish webbing to be black heavyweight polypropylene, unless otherwise indicated.
7. Edges of masking legs and the offstage edge of traveler panels are to be faced back with at least 1'-0” of fabric. Edges of borders and tabs with 2” hems. Hand-tack entire height with continuous catch stitching spaced 4” apart.
8. The onstage edge of traveler panels are to be faced back one full width of fabric plus 1'-0” (minimum).
9. Tops reinforced with 3½” polypropylene webbing with #2 black oxide finish brass grommets, 6” O.C.; double grommets at both ends. Center grommets on webbing. Provide double layer of webbing (3½” square) at each grommet at travelers and legs (not required for borders).
10. Masking borders to be marked with centerline designation on heavy-duty muslin with permanent markings, sewn securely to webbing. 2” high letters minimum.
11. Provide one 2'-0” black #4 cotton braided tie line at each grommet. Center tie line to be white on masking borders and tabs. Finish ends of tie lines to prevent unraveling.
12. Bottoms of all floor-length maskings to have 6” double-turned hems with #8 zinc coated chain in separate pocket inside hem. Weight pocket to be 1” short of finished hem for full height maskings and equal to finished hem for borders. Ends of weight pockets to be secured with 1½” wide black hook-and-loop fastener for the full height of the pocket opening.
   a. Weights shall be shipped separately from draperies.
   b. A pull-line or tape shall be placed within each weight pocket prior to shipping. The pull line shall be provided to facilitate installation of weights in the field.
13. Bottoms of all floor-length maskings to also have a separate canvas pipe pocket for insertion of 3/4” nominal pipe or other battens. Pocket to be finished even internally with face fabric hem. Ends of pocket to be left open without fastening system.
THEATRICAL DRAPERY

14. Sizes and quantities as indicated in the Drapery Schedules.

B. Scrims
1. Material: Sharkstooth Scrim, color per schedule.
2. Edges to have 3" double-stitched seams.
3. Top reinforced with 3½" polypropylene webbing, color to match face material. #2 brass grommets and black braided cotton tie lines 1'-0" O.C.; double grommets at ends. One white tie line at centerline. Mark center of drape on webbing.
4. Bottom to have 4" triple hem. Ribbon ties at 1'-0" O.C. for 1” O.D. pipe batten triple stitched to top of hem. 1'-0" polypropylene webbing sewn into ends of hems with two grommets 4" apart at corners. Provide slots in the back of the hem for installing pipe weight.
5. Provide grommets at sides, 1'-0" O.C.
6. Sizes, quantities and colors as indicated on drawings.
7. Provide 1" diameter EMT or 1” O.D. pipe for weight at bottom of scrims. Ends to be ground smooth.

C. Cyclorama
1. Material: White leno cyclorama cloth, fabricated without seams.
2. Finish webbing to be white heavyweight polypropylene.
3. Where the specified height of the cyclorama precludes the use of a single piece of leno, one horizontal seam near the top of the cyclorama will be acceptable.
4. Edges to have 3" double-stitched seams.
5. Top reinforced with 3½" polypropylene webbing. #2 brass grommets and white braided cotton tie lines 1'-0" O.C.; double grommets at ends. One yellow tie line at centerline. Mark center of drape on webbing.
6. Bottom to have 4" triple hem. White ribbon ties at 1'-0" O.C. for 1” O.D. pipe batten triple stitched to top of hem. 1'-0" polypropylene webbing sewn into ends of hems with two grommets 4" apart at corners. Provide slots in the back of the hem for installing pipe weight.
7. Provide grommets at sides, 1'-0" O.C.
8. Provide 1” O.D. painted pipe for bottom of cyclorama

D. Rear Projection Cyclorama
   a. 7 mil thickness
   b. 100% PVC
2. Edges to have 3” doubled-back material with heat welded seams.
3. Top reinforced with 3½” synthetic webbing. #2 brass grommets and black braided cotton tie lines 1'-0" O.C.; double grommets at ends. One white tie line at centerline. Mark center of drape on webbing.
4. Bottom to have 4” triple wrapped pipe pocket.
5. Provide grommets at sides, 1'-0" O.C.
7. Sizes and quantities as indicated on drawings.
8. Provide 3/4” nominal diameter schedule 40 pipe for weight at bottom of Cyclorama. Ends to be threaded and provide with couplings.

E. Bottom Pipe
1. Provide bottom pipe for draperies as indicated herein.

F. Storage Hampers
1. Provide storage hampers in sizes and quantities defined in the Drapery Schedules.

G. Storage Bags
1. Provide heavy-duty canvas drapery storage bags in sizes and quantities defined in the Drapery Schedules.

2.5 FABRICATION

A. Fabricate all work in this section in accordance with the Architect’s direction, specifications, approved shop drawings, pertinent project drawings, established trade practices and applicable code requirements.

B. Each drapery to have identification tag sewn to the webbing at the upper offstage corner of the goods. Identification tag should contain the following information:
   1. Manufacturer's Name
   2. Date of manufacture
   3. Finished size of goods
   4. Recommended cleaning instructions

C. Fabric runs to be full height without joints or intermediate seams.

D. In no case shall a seam between fabric runs fall directly at the finished end of a piece of goods. Provide 1'-0" minimum from end of goods to a seam, either on the front or back face.

E. Nap of velour sewn down unless otherwise specified.

F. Ends of chain and pipe pockets to be closed with 1½" wide hook and loop fasteners minimum.

G. Hang-out and Straightening
   1. All draperies, with the exception of cycloramas and scrims, shall be pre-hung for stretch and final length and trim prior to delivery. This shall be done at the scenic studio or at the job site given clean conditions.

PART 3 - PART 1 EXECUTION

3.1 CONTRACTORS

A. To establish comparative standards of quality, the provision of the equipment and services of this Section shall be by one of the following contractors:

   Beck Studios, Inc
   1001 Tech Drive
   Milford, OH 45150
   Tel: (513) 831-6650

   Gopher Stage Lighting
   4141 Cedar Avenue
   Minneapolis, MN 55407
   Tel: (612) 871-0138

   J.R. Clancy Incorporated
   7041 Interstate Island Road
   Syracuse, NY 13209-9713
B. **Substitution Limitations**

1. Any contractor who wishes to be listed, and has not been pre-approved, must submit qualification information to the Architect. Proposal shall include all of the information listed below:

   a. Statements of financial responsibility for the past five fiscal years showing assets and liabilities.

   b. List of principal officers and design and service engineers in an organizational structure flow chart.

   c. List of not less than 5 projects of similar size and scope completed within the five years on which contractor has provided full services: product engineering, shop drawings, manufacture, installation and commissioning. In each instance, indicate specifics of scope of fabrication and installation. Include a contact list: name, address and phone numbers of person(s) directly responsible for operation and maintenance of equipment in each facility.

   d. List of current projects and approximate contract value and completion dates. Include list of names, phone numbers and addresses of owner, owner's representatives and architect.

   e. For each above described project, list of names of persons who supervised preparation of shop drawings, manufacture of components, and installation of equipment.

   f. List of names of persons who would do project management, product engineering, supervision of shop drawing, supervision of installation should this contract be awarded.

   g. Contract Bond Company information indicating that Contractor has bonding capacity for full duration of project. Include list of other bonded projects coinciding with this project.

   h. Evidence of ability to undertake custom product engineering to meet specific requirements of project specifications. Provide sample project engineering drawings for custom products and contact information for facility operators where those products have been installed.

2. **Standards of Acceptance:**

   a. Refer to Paragraph 1.8B – Quality Assurance/Qualifications.

**END OF SECTION 11 61 43**