

SECTION 12710 FIXED AUDITORIUM SEATING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The BIDDING REQUIREMENTS, CONTRACT FORMS, AND CONDITIONS OF THE CONTRACT and applicable parts of DIVISION 1 - GENERAL REQUIREMENTS, as listed in the Table of Contents, shall be included in and made a part of this Section.

1.2 WORK INCLUDED

- A. Furnish and install the following:

Fixed theatre seating and related items, as indicated on the drawings, specified here, and as required to complete the installation.

1.3 RELATED WORK

- A. Related work which is not part of the Fixed Seating Contract includes, but is not limited to, the following:

- 1) Theatre floors.
- 2) Handrails & guardrails.
- 3) Electrical services and connections.
- 4) Electrical installation of aisle lights
- 5) Demountable Platforms
- 6) Orchestra Lift
- 7) HVAC System

1.4 ACCEPTABLE CONTRACTORS

- A. The following are acceptable Contractors:

1. Theater Solutions, Inc.
121 Park Avenue
Quakertown PA 18951
(215) 538-8036
(215) 538-8974 FAX
2. Irwin Seating Company
PO Box 2429
3251 Fruit Ridge Road NW
Grand Rapids MI 49504
(616) 784-2881
(616) 784-5819 FAX

3. American Seating Company
901 Broadway Avenue NW
Grand Rapids MI 49504
(616) 732-6895
(616) 732-6401 FAX

4. Hussey Seating Company
38 Dyer Street Extension
North Berwick, Maine 03906 USA
1-800-341-0401
(207) 676-2222 FAX

- B. Additional manufacturers wishing to bid shall be normally engaged in the manufacture of seating of equivalent type and quality, and shall submit a list of major installations where equivalent seating was installed.

- C. The installation shall comply with the applicable requirements of the laws, codes, ordinances and regulation of the Federal, State and Municipal authorities having jurisdiction.

1.4 SUBMITTALS

- A. Submit 1 original and 4 copy prints of shop drawings for review or as required by the Division 1 General Conditions. Fabrication shall not commence until the Theatre Consultant, Acoustical Consultant, and the Architect determine that the shop drawings are in compliance with the design intent of the Contract Documents. Shop drawings shall be revised and resubmitted as required.

- B. Submit an electronic copy of the shop drawing to the architect and contractor for coordination of mechanical diffuser locations and other construction elements.

- C. Shop drawings shall include the following:
 1. Complete seating plans for all levels, showing all seats, seat sizes, locations of base structures, aisle widths, end standards, and transfer arms.
 2. Complete plans for all levels indicating dimensions to air grill locations. Verify size of air grills for all locations with related trades.
 3. Complete plans for all levels indicating dimensions to aisle light locations.
 4. Details showing methods of installation and anchorage, relationship to adjacent work, and complete setting diagrams.
 5. Detail sections and elevations for each different seat condition, showing back pitch, viewer eye location, and clear distance from adjacent seat or guardrail with the seat both up and down, and (where applicable) the relationship to the adjacent riser or wall.
 6. Hinged end standard details.

7. Removable seat details.
 8. Details of aisle lighting connections, including connections for seats on platforms and removable seats.
 9. Field measurements and survey information.
- D. Submit complete manufacturer's product data for all work in this Section, consisting of complete product description and specifications, catalog cuts, laboratory test results, installation instructions, maintenance instructions, and other data required for product approval and use.
- E. Submit the following detail samples to the appropriate party for approval:
1. 8 inch square minimum piece of wood in the species and finish specified.
 2. 12 inch square minimum piece of fabric of the material specified.
 3. Seat number and row number.
 4. Metal Finish, based on Manufacturer's standard color and finish.
- F. Submit the following construction sample: Three 21 inch wide ganged seats. The ganged seats shall have end standards and aisle lights on both sides. One end standard shall be fixed the other shall be hinged.
- G. The construction samples shall be complete in every respect, including upholstery and finishes. Samples or portions of the samples shall be replaced until the appropriate party's approval has been obtained. The samples may not be incorporated in the final installation.
- H. Ship the construction samples to the appropriate party's office on the jobsite.
- I. Submit written approval of the proposed seating as required from all building, safety, and fire officials and agencies having jurisdiction over the work. Copies of all such approvals shall be delivered to the appropriate party and the Owner prior to installation.
- J. Provide 2 copies of an instruction and maintenance manual. The manual shall include:
1. Operation instructions.
 2. Recommended procedures for cleaning and maintenance.
 3. Catalog cuts.
 4. Reduced drawings.
- 1.5 Quality Assurance

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- A. Provide installer's qualifications confirming the installer is qualified to install the manufacturer's chairs.
- B. Provide seating that complies with California Technical Bulletin 117
- C. Obtain seating, including accessories and components from a single manufacturer.
- D. Design, manufacturer, and install seating with end standards aligning as per CD documents with seats varied in width and staggered to optimize sightlines. Comply with all Code and ADA regulations.

1.6 WARRANTY

- A. Warranty the seats and related items in this Section to be free of defects in materials and workmanship for a period of 3 years after acceptance of the completed installation by the Owner. Defective work shall be repaired and replaced at no cost to the Owner. The seating manufacturer shall warrant its product against failures and manufacturing defects for the life of the product.

PART 2 PRODUCTS

2.1 PRODUCT REFERENCE

- A. Product reference for the fixed seating is as follows: Theatre Solutions Inc. Seating Model "Planar A1", which includes the following:
 - 1. Fully upholstered wood bottom seat with gravity seat lift mechanism
 - 2. Fully upholstered seat back with wood veneer back.
 - 3. Hardwood veneer end standard to match Architect's sample.
 - 4. Solid hardwood armrests to match Architect's sample.
 - 5. Steel center standards.
 - 6. Floor mounted seat
 - 7. Under armrest aisle lights as located on the Contract Documents

2.2 METAL COMPONENTS

- A. Metal components shall be of sufficient gauge and designed to withstand normal use and abuse. Metal components shall have smooth surfaces.

2.3 METAL FINISHES

- A. Grind all welded connections smooth.
- B. Exposed metal parts shall be powder coated with an electro statically applied epoxy finish or baked enamel finish.

- C. All exposed metal parts, including bolts and hardware, shall be painted.
- D. The finish color shall be black.

2.4 WOOD

- A. Plywood, whether exposed or concealed, shall be hardwood. Plywood shall be hot press laminated (16 plies per inch thickness). Interior plies shall be Birch. Exposed, exterior plies shall be Baltic style, Class 1. Plies shall be of equal thickness, without voids or defects affecting appearance or performance.
- B. Milled wood shall be clear, well-seasoned stock, containing no defects affecting appearance or performance.
- C. Wood veneer species shall be Birch with natural finish and finished to match Architect's sample. Wood will be coated with lacquer of sufficient film depth to afford wear resistance of institutional quality.
- D. Plywood veneer edges shall be exposed. No hardwood caps will be provided.

2.5 PADDING

- A. Padding material shall be new high resiliency polyurethane foam, which is in conformance with all applicable Code requirements.
- B. The back cushion shall be 2" thick and the seat cushion shall be 3" thick. The outside of the foam shall be encapsulated in the 1/4" slab polyurethane foam. The padding shall be glued to the panels with neoprene cement.
- C. Padding shall be shaped to insure proper ergonomic support.

2.6 FABRICS

- A. Upholstery fabric shall be velour selected from manufacturer's standard fabrics by Architect.
- B. Fabric color shall be selected from manufacturer's standard choice of colors.
- C. Seat fabric material shall meet Class 1 flammability requirements of the U.S. Department of Commerce Commercial Standard 191-53 per Bulletin #133. (California Code) and to applicable local codes.
- D. Seat fabric shall meet wearability criteria – double rub – Wyzenbeek 90,000, heavy-duty test.
- E. Both the seat back and bottom shall be fully upholstered. All upholstery shall be first quality without creases, stretch lines, or wrinkles.

2.7 SEAT BOTTOMS

- A. Seat bottoms shall be a hardwood plywood construction with steel brackets for mounting and support. The chair profile with the seat in the upright position will not exceed 18".
- B. A built -in seat counterweight shall be attached to the seat panel to insure automatic self-rising without springs. The seat shall be self-lifting with a gravity pivot lift mechanism that has noiseless adjustable mechanisms that do not require periodic lubrication. Pivot and stop mechanisms shall be covered to eliminate pinch points. Down stops shall have neoprene pads for quiet operation.
- C. Seat hinges shall be 7 gauge hot rolled steel. A nylon sleeve will be fitted between the seat hinge and seat hinge pin. The hinge will be machined to provide a positive stop location for the seat in both the occupied and unoccupied position.
- D. Solid seat bottom shall be comprised of a flat plywood outer panel fastened solidly and without voids to an inner structural flat plywood panel. Both panels shall be $\frac{3}{4}$ " thick. The outer panel shall be Birch with natural finish.

2.8 SEAT BACKS

- A. Back panel shall be comprised of a flat structural plywood inner panel fastened solidly to an outer veneer plywood panel. The inner panel shall be $\frac{1}{2}$ " thick and the outer panel shall be $\frac{3}{4}$ " hardwood plywood. The outer panel veneer shall be Birch with a natural finish.
- B. The inner panel shall contain 4 T nuts and be secured to leg frame with 4 machine screws. The outer panel shall be secured to the inner panels with brackets and head screws resulting in a rigid connection with no visible fasteners on the outer wood panel.

2.9 ARM RESTS

- A. Armrests shall be kiln dried solid birch hardwood $\frac{13}{16}$ " thick x $2\frac{1}{4}$ " wide x $11\frac{3}{4}$ " long in maple with natural finish to match architect's sample.
- B. Armrests shall be attached to steel frame arm support with 4 with sheet metal screws.

2.10 STANDARDS

- A. Standards shall be floor mount made of $\frac{5}{16}$ " hot rolled steel plate and 11 gauge steel brackets welded into one integral freestanding structure on which the seat, back and arms are assembled.
- B. Pivot and stop pins shall be machined from cold finished steel to tolerances of .003.
- C. Floor mount plate shall be $\frac{5}{16}$ " thick hot rolled steel plate with countersunk holes for mounting screws. The finish shall be powder coated, black color.

- D. End standards shall be birch veneer with a natural finish and to match Architect's sample at the end of rows. The end panel assembly shall consist of a $\frac{3}{4}$ " plywood panel with wood veneer on both sides.

2.11 HINGED END STANDARDS

- A. Provide hinged end standards (transfer arms) where shown on the drawings for handicapped access.
- B. ADA end standards shall be of the same style and construction as normal end-standards with slight modification as necessary to accommodate hinges and floor slopes.

2.12 SEAT NUMBER PLATES

- A. Each chair shall have plates for seat numbers. The number plates shall be attached into a recessed area at the top edge of the seat. The row identification letter plate shall be attached in a recessed area at the back of the armrest.
- B. Provide donor plates for each seat. Donor plates to be attached as directed by Architect.
- C. Finish shall be aluminum in satin finish with black inset lettering to match Architect's sample.

2.13 AISLE LIGHTS

- A. Aisle lights shall be low voltage non-hazardous 24-volt AC fixtures, utilizing a miniature element in sufficient quantity to provide adequate illumination for floor and steps adjacent to the aisle standards. The light assembly shall be recessed under the aisle standard armrest, concealed from sight and protected from damage. The standard shall be completely pre-wired with an 18-inch lead extending beyond the standard.
- B. Provide the standard with a flex-steel conduit connector through which the lead passes. Provide transformers, suitably housed in steel safety enclosures and equipped with primary and secondary fuses, terminal blocks, and safety disconnects. The transformers shall be in a remote location, as shown on the Electrical drawings.
- C. All electrical components shall be UL approved.
- D. Wiring connections from the electrical distribution system to the end standards, as well as installation and connection of the voltage reduction device shall be by the Electrical Contractor.
- E. Provide quantity and location of aisle lights as indicated in the construction documents and as per all applicable Code requirements.

2.14 IMPACT CRITERIA

- A. Seats shall be capable of withstanding the repeated impact of a 40 pound sand bag dropped onto the seat pan from a height of 12 inches. The front edge of the seat pan shall not drop more than 3/4 inch.
- B. Seats shall be capable of withstanding without failure the repeated impact of two 40-pound sand bags suspended 10 inches below the top of the chair back and on both sides of the chair back.

2.15 SEAT NOISE

- A. The seats shall be self-rising to the full-fold position when unoccupied at all times without adjustment. The self-rising mechanism shall be a counterweight gravity lift type mechanism. Down stops shall be cushioned with neoprene. Seat operation shall be nearly silent when the seat bottom moves to its upright position from the down position and when people shift positions while seated in the chair. Hardware shall be permanently lubricated: Stops shall be cushioned.

2.16 SEATING LAYOUT

- A. Provide seats of varying widths with standards in each row spaced laterally so that the end standards will be in alignment from the first to last row, whether aisles are of constant or converging widths. The average seat width shall be as per the Contract Documents. Seating shall be staggered to optimize sightlines. Seat width distribution and seat quantities indicated on the Contract Documents shall be reviewed and confirmed by the manufacturer.
- B. Final seating layout shall be determined based on actual field conditions and measurements. If field conditions warrant a change in the seating layout the Architect and Theatre Consultant shall be notified before installation. Changes in the layout shall be documented and approved by the Architect and Theatre Consultant.

2.17 REMOVABLE SEATS

- A. Provide removable seats where shown on the drawings.
- B. A maximum of 3 seats shall be ganged.
- C. Each removable section of gang of seats shall have self-contained arms. Provide a quick release device for each removable seat, or group of seats.
- D. Provide quick disconnects for removable seats with aisle lights. The plug and receptacle are to be provided by the Electrical Contractor.

2.18 MAINTENANCE MATERIALS

- A. Provide cut and sewn seat and back covers for 5 percent of the seating. Covers shall be produced at the same time, using identical fabric and shall be presented to the Owner upon completion of the seating installation. Cover sizes and colors shall be prorated according to the seating sizes in the final layout.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Before beginning the installation, check all construction and substrate materials to receive the seating to assure that they are sound, rigid, properly sized and located, level (or properly sloped), plumb and square. Do not proceed until unsatisfactory conditions have been corrected.

3.2 PROTECTION OF MATERIALS

- A. Protect the materials in this Section from soiling and damage during all phases of the work, from the time of manufacture to the acceptance of the completed installation.
- B. Cover the seats to protect them from dust, paint, and debris as required during and after installation.

3.3 INSTALLATION

- A. Installation shall be by the manufacturer or an authorized dealer or agent of the manufacturer. All installation work shall be carried out under the supervision of a capable superintendent experienced in the installation of seating of similar type and quality.
- B. Coordinate the installation schedule as required with related trades.
- C. Coordinate the cutting and coring of air supply and return holes with related trades.
- D. The installation shall conform to the approved shop drawings and layout drawings and to the printed installation instructions of the manufacturer.
- E. Floor anchorages shall be of sufficient strength and capacity to assure safe, rigid, and permanent attachment.
- F. All related work for installation, such as drilling, coring, and cutting through finish floor materials in place at the time of installation shall be done as work of this Section.
- G. Remove all cartons, wrappings and debris associated with the installation from the building and legally dispose of same.
- H. Upon completion of the installation, adjust all operating parts and assemblies for proper operation. Clean and polish all exposed surfaces.

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- I. Upon completion of the installation, touch-up all marred finishes. Replace any unit whose finish cannot be restored to high quality appearance, in the opinion of the Architect and Theatre Consultant.
- J. Upon completion of the installation, leave all areas broom clean.

END OF SECTION 12710