

Fixed Audience Seating
Basis of Design: Opera Seat

Part 1 General

1.1 Work Included

- A. Supply and install fixed audience seating for new auditorium for [Project Name].

1.2 Submittals

- A. Submit shop drawings
1. Indicate chair seating layout. Show all equipment to be furnished with details and accessories to be supplied.
- B. Submit samples for seat materials and color finish from manufacturer's standard color finishes.
- C. Submit maintenance and fabric cleaning instructions.

1.3 Product Delivery, Storage and Handling

- A. Deliver fixed upholstered seating in manufacturer's packaging, clearly labeled with manufacturer's name and content.
- B. Store in a secure, dry, indoor location so as to ensure that materials are not damaged.
- C. Handle seating equipment in a manner to prevent damage.
- D. Deliver the seating at a scheduled time for installation that will not interfere with venue use or other trades operating in the building.

1.4 System Engineering

- A. Field Measurements
1. Coordinate actual field dimensions of construction affecting seating installation by accurate field measurements before fabrication.
 2. Show recorded measurements on final shop drawings.
 3. Coordinate field measurements and fabrication schedule with construction progress to avoid delay of work.
 4. Request approval of seating layout prior to fabrication.
- B. Structural Performance: Engineer, fabricate and install fixed audience seating to meet structural loads without exceeding allowable design working stresses of materials involved, including anchors and connection. Apply each load to produce maximum stress in each respective component of each audience seat unit. Engineer components as follows:
1. Seat shall exhibit moderate compound contours for supportive comfort avoiding excess anatomical pressures.
 2. Seat shall be tested and professionally certified through an independent testing laboratory to support and withstand evenly distributed static load without failure or irregularities that would impair usefulness. Proponent shall submit the static load achieved in the test.
 3. Seat shall be tested and professionally certified to withstand impact loading. Proponent shall submit the impact load achieved in the test and the test method.
 4. Back shall withstand an evenly distributed front or rear static load. Proponent shall submit the static load achieved in the test.
 5. Back shall be tested and professionally certified to withstand impact loads, without failure. Proponent shall submit the impact load achieved in the test and test method.
 6. Armrests shall be tested and professionally certified to withstand, without failure, static load applied perpendicular to the arm. Proponent shall submit the static load achieved in the test.

- C. The proponent shall submit data relating to the flammability of materials demonstrating compliance with California Technical Bulletin 117.

1.5 Variance

- A. Bidders are asked to identify in a list any items that are at variance with the specified product(s). This list is to include and describe any non-compliant features or components as well as any enhancements or improvements that exceed the specified product(s).

1.6 Warranty

- A. Provide a 5 Year Manufacturer's Warranty against defects in the manufacture of the fixed audience seating with details regarding limitation or qualifications of coverage.

Part 2 Products

2.1 Materials

- A. Steel Plates, Shapes, Bars: ASTM A570
- B. Drilled-in Expansion Anchors: SAE Grade 2
- C. Concealed Plywood: Hardwood Plywood ANSI/HPVA HP
- D. Exposed Plywood ANSI/HPVA HP, A Grade
- E. Medium Density Fiberboard: ANSI A208-2
- F. Plastic Laminate: NEMA LD3.1-1985, GP 48
- G. Polyurethane Foam Padding: ASTM D-3574
- H. Injection Molded Plastic: Virgin High Density Polypropylene with a melt index of 7.

2.2 System

- A. Layout: Show the number of chairs, number of rows, row spacing, seat spacing from center to center of armrests, slope of floor, rise of risers, and numbered rows and seating must be designed by winning bidder and approved by Owner prior to manufacturing.
- B. Frame: Center and sides made of rectangular section tube of 25.4mm (1") x76.2mm (3") 14gauge. with different fixing elements, stamped and stuffed with different gauge iron sheets, back support holders in a N°14 gauge, seat support in 7 gauge, arm rest support 14 gauge, foot plate to be fixed on floor in N°11 gauge. The metallic parts are welded with a MIG slag free welding system.
- C. Seat Assembly:
1. Seat Rising Mechanism: Maintenance Free Gravity-Lift Seat mechanism features a full width 5/8" diameter solid steel cross shaft mounted to each standard (left and right side). Cross shaft features two 3 gauge steel stops line welded inside of seat assembly. Cross shaft is run through two self-lubricating cast nylon bearings affixed to bumper mechanism by two machine screws each. Bumper mechanism is affixed with neoprene stops on each side for quiet operation.
 2. Upholstery: Comprised of 4" thick 50/55 kg./m³ foam padding over a woven nylon chafe barrier applied to a high-impact, injection molded polypropylene frame with five serpentine, no-sag springs. Sewn, upholstered cover is stretched over the top of the seat unit and attached on the underneath of the seat frame structure. As installed, seat height to be 17-1/8".
 3. Shell: Seat shell assembly made of injection molded high-density polypropylene in the color selected by the Owner.

- D. Back:
 - 1. Outer Back: High-impact injection molded outer shell with soft curve on top and return cuff on sides and top to protect fabric. As installed, total back height to be 32-1/2" [35"].
 - 2. Upholstery: 2" Thick 50/55 kg/m³ foam back rest affixed to injection molded, high-density polypropylene inner back with 1/4" reinforced ribbing, covered with upholstery fabric stretched and stapled to polypropylene to prevent fabric from loosening over time.
- DI. Aisle Panels [Special Ends Available]: Tapered, 3/4 length, metal encased panel with fabric or plastic laminate insert as selected by Architect.
- DII. Armrests: Located at aisle and intermediate standards. High impact polypropylene injected with multi-ribbed inner side and textured outer side. Color selected by the Owner.

2.3 Upholstery Fabric: [Fabric Manufacturer / Pattern / Color]

2.4 Accessories

- A. Seat and Aisle Plates: Manufacturer's standard seat numbers securely fastened to front edge recess in seat shell and row letters/numbers securely fastened to top rear surface of aisle armrest.
- B. ADA Aisle Ends: ADA aisle ends to be lift-arm aisle ends with clearly identifiable labels indicating "handicapped" seating. Lift-arms are designed to raise to an upright position allow side entry into chair. Decorative end panel requirements are waived for ADA aisle ends. Total to be 5% of all aisle ends adjacent to aisle.
- C. Movable Seating: Seating mounted to 14 gauge, 1" diameter steel tube frame with powder coat finish. 1/4" Threaded anchors welded to anti-tip free standing base. Heavy duty anti-slip rubber glides. Anti-tip base will be balance to prevent tipping under normal use.
- D. Aisle Lighting: Tivoli LED Aisle Lights, 12VDC, 4 lamps per fixture
- E. Extra Stock:

2.5 Shop Finishes

- A. Steel Finish: Metal shall be chemically cleaned in an iron phosphate wash system. Then applied with an electrostatically sprayed high solids enamel to yield a minimum dry film thickness of 1.5 mils. Enamel shall be baked 15 minutes in a 300 degree oven.
- B. Injection Molded Polypropylene: Shall be pigmented in one of manufacturer's standard colors and have a textured face.
- C. Powder Coating Color: Shall be per manufacturer's standards. Seating contractor shall submit color samples to Owner for approval prior to manufacturing.

2.6 Fastenings

- A. Welds: Performed with MIG welding systems in ISO-9001:2000 certified facility.
- B. Structural Connections: Secured by structural bolts with torque lock nuts or free-spinning nuts in combination with lock washers. The use of self-tapping bolts or screws without locking nuts is unacceptable for structural connections.
- C. Concrete Floor Attachment: Chair standards shall each be attached by means of two 1/4" Hilti KB-3 expansion bolts set in holes drilled to a depth of not less than 1-1/2".

Part 3 Execution

3.1 Examination

- A. Verification of Conditions: Verify area to ensure fixed upholstered chair seating area is free of impediments interfering with installation and condition of installation substrates are acceptable to receive audience seats in accordance with seating manufacturer's recommendations. Do not commence installation until conditions are satisfactory.

3.2 Installation

- A. Manufacturer's Recommendations: Comply with seating manufacturer's recommendations for product installation requirements.
- B. General: Install fixed upholstered chair seating in accordance with manufacturer's installation instructions and final shop drawings. Provide accessories, anchors, fasteners, inserts and other items for installation of seating and for permanent attachment to adjoining construction.

3.3 Adjustment and Cleaning

- A. Adjustment: After installation completion, all equipment is to be adjusted for smooth and proper operation.
- B. Cleaning: Clean work area and remove debris from site.

3.4 Protection

- A. General: Provide final protection and maintain conditions, in a manner acceptable to manufacturer and installer to ensure audience seats are without damage or deterioration at time of substantial completion.