

**SECTION 12 61 00
FIXED AUDITORIUM SEATING**

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. The provisions of the General Conditions, Supplementary Conditions, and the Sections included under Division 1, General Requirements, are included as a part of this Section.

1.2 SUMMARY

- A. Provide labor, materials, and equipment necessary for the complete installation of auditorium seating as indicated.
- B. Related Work Specified Elsewhere
 - 1. Electrical connections for aisle lighting are included in Division 26.

1.3 SYSTEM DESCRIPTION

- A. Accessibility Requirements
 - 1. Seating shall conform to the Florida Building Code.

1.4 SUBMITTALS

- A. Provide product data for each type of product specified, including installation methods for each type of substrate.
- B. The shop drawings shall indicate the numbering system for seating, aisle light junction box locations, showing locations where each series is to be installed.
- C. Submit for Architect's selection, samples of manufacturer's full material and fabric color line showing the full range of standard colors, finishes, patterns, and textures available for each exposed material.
- D. Certification letter from manufacturer stating seating meets requirements specified herein.
- E. The seating manufacturer shall furnish to the Architect three printed copies of the manufacturer's recommendations for the care, cleaning, and maintenance of the seating.

1.5 REFERENCES

- A. AATCC – American Association of Textile Chemists and Colors TM 16 series
- B. ASTM E84 – Standard Test Method for Surface Burning Characteristics of Building Materials
- C. ASTM E1537 – Standard Test Method for Fire Testing of Upholstered Furniture
- D. ASTM F851 – Standard Test Method for Self-Rising Seat Mechanisms
- E. NAAMM National Association of Architectural Metal Manufacturers – Metal Finishes Manual
- F. NFPA 266 – Standard Method of Test for Fire Characteristics of Upholstered Furniture Exposed to Flaming Ignition Source
- G. UL 1056 – Standard for Fire Safety Fire Test of Upholstered Furniture
- H. FBC – Florida Building Code
- I. FFPC - Florida Fire Protection Code

1.6 QUALITY ASSURANCE

- A. Engage an experienced Installer who is certified in writing by the seating manufacturer as qualified to install manufacturer's seating.
- B. Provide seating that complies with the following:
 - 1. Test Method: UL 1056, NFPA 266 or ASTM E 1537
 - 2. FBC
 - 3. FFPC
- C. Design and install seating with end standards aligning from first to last row and with backs and seats varied in width, optimizing sight lines.

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1.7 PROJECT CONDITIONS

A. Environmental Conditions:

1. Do not install seating until space is enclosed, weatherproof, wet work in space is complete, and nominally dry, installation of finishes including painting complete.
2. Do not install seating until ambient temperature and humidity conditions at final occupancy values.
3. Install seating only when project conditions meet the manufacturer's requirements.

B. Field Measurements:

1. Check seating layout by field measurements before fabrication; show recorded measurements on shop drawings.

PART 2 PRODUCTS

2.1 MANUFACTURER

- A. Provide auditorium seating as manufactured by the Irwin Seating Company, Grand Rapids, Michigan; of the type, size, function, quality, and arrangement required.
- B. Architect and Owner will consider products of the following manufacturers providing their products equal or exceed the quality specified; and are of the type, size, function, and arrangement required.
 1. Seating Concepts, San Diego, California
 2. Hussey Seating Co., Berwick, Maine
 3. Approved equal manufactures. Submit evaluation materials per Section 01 33 00.

2.2 FERROUS METAL FINISHES

- A. General: NAAMM "Metal Finishes Manual" for applying and designating finishes.
- B. Surface Preparation: Clean surfaces of dirt, grease, and other contaminants followed by a conversion coating applied over it.
- C. Metal Parts:
 1. Powder coat all exposed metal parts with an epoxy powder-coat finish.
 2. Apply the powder coat finish by electrostatic means to a thickness of 2-3 mils, and shall provide a durable coating having 4H pencil hardness.
 3. Prior to powder coating, metal parts shall be treated with a fire stage bonding process for superior finish adhesion, and after coating shall be oven baked to cause proper flow of the epoxy powder to result in a smooth, durable finish.
 4. Use manufacturers standard color range.

2.3 FABRICATION

- A. Chairs shall be "Citation", Model 4686, having the following characteristics:
- B. Pedestal Aisle Standard:
 1. Aisle standards shall be type # 86, pedestal design with 14-ga (0.0747") steel, 1" by 3" rectangular column.
 - a. Weld a formed panel of 16-ga (0.0598") steel to the column to accept a decorator panel.
 - b. Provide the top of the column with two formed steel dovetail lugs for secure attachment of the armrests.
 - c. Brackets for seat attachment shall be of 7-ga steel MIG welded on inside of the standard.
 - d. A tapered "decorator" aisle panel shall be high-density particle core, surfaced with one of the following.
 - i) Plastic Laminate: Plastic laminate of pattern selected.

- ii) Hardwood Veneer: Selected hardwood veneer finished with lacquer on all exposed edges and surfaces.
2. Floor Mount:
 - a. Weld a formed 14-ga (0.0747") steel foot to the bottom of the rectangular column.
 - b. This weld shall be at all critical stress areas 360° around the column and concealed on the inside, so as not to detract from the clean appearance.
 - c. The foot dimension shall be 8" by 2-3/4" to provide maximum bearing surface to the floor to withstand severe tightening and shock without fracture.
 - d. Fabricate the standard so it is compatible with the floor incline, and maintain proper seat and back height and angle.
 - e. All welding shall be gas shielded, arc weld.
 3. Arrange aisle standards, where/if designated, for easy access by individuals with disabilities and design to allow the individual to transfer easily from a wheelchair to the theater chair.
 - a. The aisle standard support column shall be inclined to the rear at the top by 16°, and shall be equipped with an armrest capable of lifting to a position parallel with the chair back, opening sideways to access the seat.
 - b. Provide aisle standards if so equipped with a label, displayed with an easily recognizable symbol of accessibility.
 - c. Accessibility standards take precedent over decorative requirements.
- C. Pedestal Center Standard
1. Center standards shall be of welded steel, modern pedestal design, fabricated 14-ga (0.0747") steel to a 1" by 3" rectangular column.
 - a. Brackets for seat support shall be 7-ga (1.875") steel for superior strength formed with an integral support buttress, and wing plates for mounting backs shall be 14-ga (0.0747") steel; both MIG welded to pedestal column shall be provided with 2 formed steel dovetails for secure attachment of the armrests.
 2. Floor Mount:
 - a. Weld a formed 14-ga (0.0747") steel foot to the bottom of the rectangular column.
 - b. The weld shall be at critical stress areas 360° around the column and concealed on the inside, so as not to detract from the clean appearance.
 - c. The foot dimension shall be 8" by 2¾" to provide maximum bearing force to the floor to withstand severe tightening and shock without fracture.
 - d. Fabricate the standard to be compatible with the floor incline, and to maintain proper seat and back height and angle.
 - e. All welding shall be gas shielded, arc weld.
- D. Back Construction
1. Backs shall be padded and upholstered, consisting of a one-piece injection molded plastic outer panel, and a 7/16", 5-ply hardwood inner upholstery panel.
 - a. The outer panel shall be injection molded plastic, high impact resistant with textured outer surface, formed to enclose the edges of the inner upholstery panel at the top and both sides of the back, and shall be not less than 26" length, extending below the seat level to protect the seat cushion.
 - b. There shall be no exposed screws above the armrests.
 - c. Back wings for attaching the back to the standards shall be not less than 14-ga (0.0747") steel, secured to the inner panel by the use of 4 machine screws threaded into 4 threaded washers.
 - d. Place the upholstery materials over a 1¼" thick poly foam pad.

- e. The poly foam pad shall be securely cemented to the plywood inner panel and the upholstery fabric shall be securely fastened to the hardwood inner panel by means of upholstery staples to facilitate ease of reupholstering.
 - f. Back wings shall have provision for 16°, 20°, or 24° pitch.
- E. Upholstered Seat Assembly
- 1. Upholster seats on thick face with serpentine spring cushions supported by a formed steel foundation pan, and automatically self-fitting to a 3/4-fold position when unoccupied.
 - a. The seats shall be certified to withstand a 600-pound static load, laterally distributed 3" from the leading edge of the seat.
 - b. Provide seats certified to pass a 300,000-cycle seat, oscillation test, ASTM F851 Test Method for self-rising seat mechanism, and sand bag testing.
 - 2. Provide seat cushion with a base structure of 5 serpentine springs spanning a 14-ga steel frame, formed to a channel, welded for precision fit into the steel foundation pan.
 - a. Secure serpentine arch springs spanning the frame to the cushion frame by insulated squeak-proof clips, and isolate from the polyurethane cushion by a tough, durable, non-woven, non-vegetable chafing barrier.
 - b. The seat cushion shall have an extended front, high resilient polyurethane foam pad, molded to the contour of the springs on the bottom and providing a flat surface on the top of the cushion with a crisp, waterfall leading edge.
 - i) Height of the cushion at the front edge shall be consistent at approximately 3" above the steel foundation.
 - a) Polyurethane foam, to insure a high and satisfactory cushion quality, shall process the following values:
 - 1) Density: 3.3 - 3.8 pounds
 - 2) Sag Factor: 2.5 minimum
 - 3) I.F.D (25 percent): 26 pounds plus or minus 3 pounds
 - 4) Flex-Fatigue (50 pounds load): 10% maximum
 - ii) The specified fabric, carefully, tailored, shall be of panel side construction, secured around the perimeter of the cushion frame by case hardened spring clips, which permit ease of re-upholstering.
 - iii) Securely lock the seat cushion assembly into the seat pan by positive, high strength spring clips, which prevent unauthorized removal of cushions, but are removable from the seat foundation without removal of screws or bolts.
 - 3. Seat foundation pan shall be 20-ga, deep drawn, die-formed steel, completely enclosing the self-lifting hinge mechanism.
 - a. Strengthen the seat pan with a full 360° roll around the perimeter for rigidity, a decorative embossing, and to provide additional legroom for a standing patron.
 - b. Further, the foundation pan shall have internal reinforcing consisting of steel double plates and formed angular steel lateral braces.
 - c. The foundation pan shall be free of screws and bolts on the bottom, front, sides, and rear.
 - 4. The seat shall rotate on two self-compensating, fully independent, 5/8" dia high strength solid steel hinge rods.
 - a. Use a lifetime lubricated nylon shoulder bushings for a silent operation of the hinges.
 - b. When unoccupied, the seat shall automatically rise to a 3/4-fold position, and upon a slight rearward pressure, shall achieve full fold, allowing the patron additional passing room.

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- c. Use a dual 13-ga extension springs, providing gentle, quiet self-uplift, dampened at the 3/4-fold position by rubber cushioned compression spring actuated plungers for the self-lifting.
 - d. Down stops shall be rubber cushioned for quiet operation.
- F. Armrests:
 1. Provide a high-pressure plastic laminate of wood grain pattern on armrests.
 2. The plastic laminate shall be on the top surface of the arm block only.
 3. The arm block shall be of solid birch or maple hardwood.
- G. Fabric: Provide Marquesa Lana, bulked continuous filament olefin yam produced by Amoco Fabrics Company.
 1. Width: 54"
 2. 13 warp ends per inch and 13 full picks per inch
 3. Weight: 14.4 ounce per linear yard not backed.
 4. Backing: Acrylic
 5. Light-fastness: Exceeds 200 hours when tested under AATCC 16.
 6. Break Strength: Warp - 300 pounds, fill - 300 pounds
 7. Tear Strength: Warp - 60 pounds, fill - 63 pounds
 8. Abrasion: Exceeds 250,000 double rubs on Wysenbeck Test; Withstands 13,000 - 14,000 cycles on Taber Abrasion Test;
 9. Colorfastness: To crocking-wet, 5 (no color change) - dry, 4.5, to water 5, to burnt gas fumes 5, to ozone 5
 10. Flame Resistance: Meets requirements of the following fire codes: ASTM E84 Class-A Department of Commerce GS-1 91 -53 Class-1.
 11. Cleaning Code: WS
- H. Number of Letter Plates
 1. Seat Pans:
 - a. Provide a numbering system for identification of all chairs.
 - b. Furnish number and letter plates as shown on the approved seating layout.
 - c. Number and letter plates shall be 5/8" by 1-5/8" and shall have a bronze finish with black Helvetica Medium letters and numerals.
 - d. Recess the seat pan at the center of the front edge for the number plate, and two pop rivets shall attach the plate.
 - e. Attach the letter plates in a recess in the aisle standard armrest by two escutcheon pins.
 - f. Attaching hardware shall have a bronze finish compatible to plates.
 2. Manufacturer shall submit seating layout numbering and lettering system as part of submittals in this Specification.
- I. Movable Bases:
 1. Provide movable bases at locations as indicated on the Drawings.
 2. Movable chair bases shall be of 3/16" by 3½" by 17" steel cross members securely welded to horizontal base member.
 3. Provide holes for the attachment of the standards.
- J. Tablet Arm:
 1. Provide folding type tablet arm on every third auditorium seating chair in all rows Seating with tables shall be staggered from row to row to provide a checker- board pattern of seating with tablets throughout the auditorium.
 2. Provide 10% of all table arms as left handed and easily identifiable.

3. Surface the tablet arms with high-pressure plastic laminate and sized to accommodate 8½" by 11" writing pads.
 4. Tablet arms shall be of steel construction and shall swing out of the way for normal chair use.
- K. Aisle Lights:
1. Provide aisle standards with a louvered rectangular aisle light at as shown on the plans.
 2. Provide the aisle light standard with utility box, light socket, 10-watt bulb, and removable light cover.
 3. Light cover shall be hooded/ louvered.
 4. Wiring and electrical connections shall be under the Work of Division 26.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for construction tolerances, material properties as they affect anchors and fasteners, and location of junction boxes.
- B. Do not proceed until unsatisfactory conditions are correct.

3.2 INSTALLATION

- A. Strictly follow the manufacturer's shop drawings and installation instructions.
 1. Mechanics making the installation shall be experienced in this type of work and capable of the highest quality of workmanship.
- B. Attach the chairs by means of an approved type of lead shield expansion bolts.
 1. Attach floor mount chairs with 1/4" expansion bolts by not less than 2" long.
 2. There shall be two bolts per standard.
- C. Movable Bases:
 1. Attach to floor with "Ackerman/Johnson" fastener assembly.
 2. The minimum number of fasteners is two per aisle standard, one per center standard, and at any alternative hole positions.

3.3 ADJUSTMENT

- A. Correct, repair, or replace any defective workmanship or damaged components, as requested by the Architect, without further cost to the Owner.

3.4 CLEANING

- A. Adjust seats and tablet arms after installation to provide proper operation.
 1. Exposed surfaces and edges shall be cleaned and construction and installation mark, removed prior to acceptance by Owner.
- B. Supplier / installer of this equipment shall be responsible for the prompt removal and disposal of trash, crating, etc.

END OF SECTION