

SECTION 12610 - FIXED AUDIENCE SEATING

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: Fixed upholstered chairs with self-rising seat mechanisms, aisle and intermediate standards.
 - 1. Typical applications include the following ***ED. NOTE: REVISE FOLLOWING APPLICATION TO SUIT PROJECT:***
 - a. Floor mounted chairs.
 - b. Riser mounted chairs.
 - 2. Special applications include the following ***ED. NOTE: REVISE FOLLOWING APPLICATION TO SUIT PROJECT:***
 - a.
 - b.
- B. Related Sections:
 - 1. Division 16 Electrical sections for electrical wiring and connections for aisle lights.
- C. Alternates: This section specifies alternates for audience seating products. Refer to Part 2 products for alternate products, and to Division 1 Alternates sections and other bid documents, if any, for alternate requirements.
- D. Product Improvements: Hussey Seating Company strives to continuously improve its products and manufacturing methods. The company reserves the right to make changes without notice when, in the opinion of the company, such changes improve the product or its performance.

1.02 REFERENCES

- A. American Welding society (AWS):
 - 1. AWS D1.1 Structural Welding Code - Steel.
 - 2. AWS D1.3 Structural Welding Code - Sheet Steel.
- B. American Institute of Steel Construction (AISC):
 - 1. AISC - Design of Hot Rolled Steel Structural Members.
- C. American National Standards Institute (ANSI).
- D. American Iron & Steel Institute (AISI):
 - 1. AISI - Design Cold Formed Steel Structural Members.
- E. Aluminum Association (AA):
 - 1. AA - Aluminum Structures, Construction Manual Series.
- F. American Society for Testing Materials (ASTM)
 - 1. ASTM - Standard Specification for Properties of Materials.
- G. National Forest Products Association (NFPA):
 - 1. NFPA - National Design Specification for Wood Construction.
- H. National Bureau of Standards/Products Standard (NBS/PS):

1. PS1 - Construction and Industrial Plywood.
- I. Americans with Disability Act (ADA)
 1. ADA - Standards for Accessible Design.

1.03 MANUFACTURER'S SYSTEM ENGINEERING DESCRIPTION

- A. Structural Performance: Engineer, fabricate and install fixed audience seating to the following 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.
- B. Manufacturer's System Design Criteria:
 1. Seats and Backs:
 - a. Shall embody a timeless sculptured appearance to harmonize with any architectural form or room decor.
 - b. Shall exhibit moderate compound contours for supportive comfort avoiding excess anatomical pressures.
 - c. Seat shall be semi-cantilevered, self-centering, automatic three-quarter (3/4) lift with over center retract feature, for ease of passage and janitorial access.
 - d. Seat shall be tested and professionally certified through an independent testing laboratory to support and withstand an evenly distributed 600 lb.[272 Kg] static load without failure or irregularities that would impair usefulness.
 - e. Self-lifting seat shall be tested and professionally certified through an independent testing laboratory to withstand 350,000 operating cycles without failure of seat mechanism or measurable component wear.
 - f. Seat shall be tested and professionally certified to withstand 10,000 impacts of a 40 lb.[18 Kg] sandbag dropped on the center of the seat from each of the following heights: 6"[152mm], 8"[203mm], 10"[254mm], and 12"[305mm]. The rate of impacts shall be approximately 18 per minute with the total quantity of impacts equaling 40,000.
 - g. Back shall withstand an evenly distributed front or rear static load of 450 lbs.[205 Kg].
 - h. Back shall be tested and professionally certified to withstand, without failure, 40,000 swinging impacts each to the front and rear of the back by means of two opposing 40 lb. [18 Kg] sandbags. The sandbags shall be moved horizontally and equally for 10,000 cycles each at the following distances of 6"[152mm], 8"[203mm], 10"[254mm], and 12"[305mm] at a rate of 35 cycles per minute.
 - i. Back shall withstand, without failure, an evenly distributed Horizontal Traverse Static Load of 200 lbs.[90.70Kg]. The load shall be applied to the top of the back at a 45-degree angle to the row of seats.
 - j. Armrests shall be tested and professionally certified to withstand, without failure, a 200 lb.[91 Kg] static load applied both perpendicular to and vertically down on the arm.

2. Materials (Flammability) shall satisfy applicable test, codes, standards, or requirements as follows:
 - a. Copolymer polypropylene shall have a burn rate of 1 inch [25.4mm] or less per ASTM 635.
 - b. Upholstery materials shall meet requirements as set forth in the state of California Bureau of Home Furnishings Technical Bulletin 117.
 - c. Fire-performance Characteristics of Seat Padding: Provide seating that complies with test method: California Technical Bulletin 117
 - d. Cushioning and padding shall be self-extinguishing as defined in the requirements as set forth in the State of California Bureau of Home Furnishings Technical Bulletin 117.
 - e. **ED. NOTE: SELECT THE FOLLOWING, AS REQUIRED.** Full Scale Fire Performance Characteristics of Finished Chair: Provide seating that complies with test method: California Technical Bulletin 133 or British Standard CRIB 5

1.04 SUBMITTALS

- A. Section Cross-Reference: Submit required submittals in accordance with "Conditions of the Contract" and Division
 1. General Requirements sections of this "Project Manual."
- B. Project Data: Manufacturer's product data for each system. Include the following:
 1. Project list: Ten (10) seating projects of similar size, complexity and in service for at least five (5) years.
 2. Deviations: List of deviations from these project specifications.
- C. Shop Drawings: Indicate fixed upholstered chair seating layout. Show all equipment to be furnished with details of accessories to be supplied including necessary electrical service to be provided by others.
- D. Samples: Seat materials and color finish as selected by Architect from manufacturers standard color finishes.
- E. Manufacturer Qualifications: Certification of insurance coverage and manufacturing experience of manufacturer.
- F. Installer Qualifications: Installer qualifications indicating capability, experience, and manufacturer acceptance.
- G. Engineer Qualifications: Certification by a professional engineer registered in the state of manufacturer that the equipment to be supplied meets or exceeds the design criteria of this specification.
- H. Owners Manuals: Provide Owner's maintenance manual and demonstrate operating procedures.
- I. Warranty: Manufacturers standard five-year warranty documents.

1.05 QUALITY ASSURANCE

- A. Welding Standards & Qualification: Comply with AWS D1.1 Structural Welding Code - Steel and AWS D1.3 Structural Welding Code - Sheet Steel.
- B. Insurance Qualifications: Mandatory that each bidder submit with his bid an insurance certificate from the manufacturer evidencing the following insurance coverage:
 - 1. Workers Compensation - including Employers Liability with the following limits:
 - a. \$500,000.00 Each Accident
 - b. \$500,000.00 Disease - Policy Limit
 - c. \$500,000.00 Disease - Each Employee
 - 2. Commercial General Liability - including premises/ operations, independent contractors and products completed operations liability. Limits of liability shall not be less than \$2,000,000.00
- C. Manufacturer Qualifications: Manufacturer who has 10 years of experience manufacturing spectator seating equipment.
- D. Installer Qualifications: Engage experienced Installer who has specialized in installation of audience seating similar to types required for this project and who is acceptable to, or certified by, fixed upholstered chair seating manufacturer.
- E. Engineer Qualifications: Engage professional licensed engineer experienced in providing engineering services of the kind indicated that have resulted in the successful installation of audience seating similar in material, design, fabrication, and extent to those types indicated for this project.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Deliver fixed upholstered chair seating in manufacturers packaging clearly labeled with manufacturer name and content.
- B. Handle seating equipment in a manner to prevent damage.
- C. Deliver the seating at a scheduled time for installation that will not interfere with other trades operating in the building.

1.07 PROJECT CONDITIONS

- A. Field Measurements: Coordinate actual dimensions of construction affecting fixed upholstered chair seating installation by accurate field measurements before fabrication. Show recorded measurements on final shop drawings. Coordinate field measurements and fabrication schedule with construction progress to avoid delay of Work.

1.08 WARRANTY

- A. Manufacturer's Product Warranty: Submit manufacturer's standard warranty form for fixed upholstered chairs. This warranty is in addition to, and not a limitation of other rights Owner may have under Contract Documents.
 - 1. Warranty Period: Five years from Date of Substantial Completion.
 - 2. Beneficiary: Issue warranty in legal name of project Owner.

3. Warranty Acceptance: Owner is sole authority who will determine acceptance of warranty documents.

1.09 MAINTENANCE AND OPERATION

- A. Instructions: An owners manual shall be transmitted to the Owner by the manufacturer of the seating or his representative.
- B. Service: Maintenance and operation of the seating system shall be the responsibility of the Owner or his duly authorized representative, and shall include the following:
 1. Only attachments specifically approved by the manufacturer for the specific installation shall be attached to the seating.
 2. Periodic annual inspections and required maintenance of each seating system shall be performed according to the owners manual to assure safe conditions.

PART 2 - PRODUCTS

ED. NOTE: MANUFACTURER DOES NOT RECOMMEND THE USE OF PHRASES "OR EQUAL"/"OR APPROVED EQUAL" BECAUSE OF DIFFERING INTERPRETATIONS BETWEEN CONTRACTING PARTIES. CONSIDER UTILIZING "ALTERNATE" METHOD OF SPECIFYING PRODUCTS FOR LISTING ALTERNATE MANUFACTURERS AND PRODUCTS. (SEE ARTICLE 2.02 HEREIN.)

2.01 MANUFACTURERS

- A. Manufacturer: Hussey Seating Company, U.S.A.
 1. Address: 38 Dyer St Ext., North Berwick, Maine, 03906
 2. Telephone: (207) 676-2271; Fax: (207) 676-9690
 3. email: info@hussyseating.com
 4. Product: Hussey Quattro Chair System ***ED. NOTE: ADD SELECTIONS, FROM THE FOLLOWING, FROM MANUFACTURER'S LITERATURE AND COORDINATE SELECTIONS WITH DRAWINGS.***
 - a. Model: ***ENTER CHAIR TYPE QUATTRO***
 - b. Series: ***(SELECT), Classic – Designer – Softside- Performance Polymer***
 - c. Back Foam: ***(SELECT), 2" [51mm] - 3"[76mm] – Contoured – N/A***
 - d. Seat Type: ***(SELECT) Polymer, Standard upholstery - Full enveloped***
 - e. Armrest Type: ***(SELECT) Plastic – Solid Hardwood - Upholstered***
 - f. Standards: ***(SELECT) Steel or Cast aluminum***
 - g. Chair Mount: ***(SELECT) Riser Mount or Floor Mount***
 - h. End Panels: ***(SELECT) None - Plastic laminate - Veneer - Upholstered***
 5. Product Description/Criteria:
 - a. Number of Chairs: _____
 - b. Number of Rows: _____
 - c. Number of Wheelchair Locations: _____
 - d. Number of ADA Easy Access End Standards: _____
 - e. Row Spacing: _____

- f. Rise: _____
- g. Fabric: _____

6. Product Accessories: (**SELECT**) Armrest cupholders (plastic, hardwood, or upholstered), ADA standards (Easy Access or Armless), End Panels (laminated, veneer or upholstered), Chair numbers (Std or Ecoglo), Row letters (Std or Ecoglo), Donor Plates (**Brass or Aluminum**), Tablet arms (T1, T2 or T2m), Logos (Cast or Graphic), Quick-Link, Removable chairs, Aisle lights (low or high mount), Worship Organizers (I or II), Pew End Panels.

B. Other Acceptable Manufacturers:

- 1. Manufacturer/Product **ED. NOTE: COMPLETE THE FOLLOWING, AS REQUIRED:** _____

2.02 ALTERNATES ED. NOTE: COORDINATE FOLLOWING ARTICLE WITH RELATED DIVISION 1 SECTION FOR ALTERNATES, AND BID DOCUMENTS AND BID FORMS FOR BID TYPE PROJECTS.

- A. Base Bid: _____
 - 1. Base Bid Product:
 - 2. Base Bid Product Accessories:
- B. Alternate No. __: In lieu of providing base bid product, provide the following:
 - 1. Alternate Product:
 - 2. Alternate Product Accessories:
- C. Alternate No. __: In lieu of providing base bid product, provide the following:
 - 1. Alternate Product:
 - 2. Alternate Product Accessories:

2.03 MATERIALS ED. NOTE: FOLLOWING ARTICLE FOR GENERIC/REFERENCE SPECIFICATION.

- A. Cast Aluminum: AA - 380
- B. Steel Tubing: ASTM A513
- C. Steel Sheet/Coil: ASTM A607
- D. Mechanical or Adhesive Concrete Anchors: SAE grade 2
- E. Exposed Hardwood Lumber: Wood Species: Birch
- F. Concealed Plywood: Engineered Wood Association PS1-95 2000: Poplar
- G. Exposed Plywood: Hardwood Plywood ANSI/HPVA-1 2000: Birch
- H. Medium Density Fiberboard: ANSI A208-2-1986
- I. Plastic Laminate: NEMA LD3.1-1985, GP 48
- J. Polyurethane Foam Padding: ASTM D-3574

- K. Fabric: 100% Marquesa Lana continuous filament Olefin in the following standard selections:
1. Fabric shall have 13 fill picks per inch, 13 warp ends per inch, weighing 16 oz. [454grams] per linear yard including backing.
 2. Fabric shall have 13 fill picks per inch, 13 warp ends per inch, weighing 18 oz. [510grams] per linear yard including backing.
 3. Fabric shall have 16 fill picks per inch, 19 warp ends per inch, weighing 12 oz. [340grams] per linear yard including backing.
- L. Molded plastic: Injection Molded copolymer polypropylene or nylon 6/6.

2.04 DESIGN AND CONCEPT: Auditorium chairs shall be designed to exhibit a modern appearance that will enhance any auditorium's décor. Seats, backs, and standards shall complement each other without the need for end panels or other adornments. Superior comfort will be derived through careful ergonomic engineering, selection of materials, and design of supportive structures.

2.05 FABRICATION *ED. NOTE: COORDINATE FOLLOWING PARAGRAPHS WITH SELECTION MADE UNDER PRODUCT DESCRIPTION.*

A. Upholstered Seats:

1. The seat assembly shall consist of a stylish padded and upholstered top surface, a polypropylene bottom shell with dual contours, and a dual sprung lifting mechanism. Seat shall have the ability to achieve a full fold position when rearward pressure is applied. Superior comfort shall be derived through careful ergonomic engineering.
2. Upholstery Pad: The upholstered seat topper shall consist of a 5/8" thick formed ply form base with contoured molded polyurethane foam padding and fabric upholstered cover. Seat padding shall be properly contoured to support the body without causing discomfort. The upholstered seat cover shall exhibit a high degree of tailoring and will be affixed to the base with upholstery staples.
3. Seat Mechanism: Seat lifting mechanism shall use lubricated lifting springs to provide whisper quiet fail-safe operation. The seat structure shall rotate on a 3/4" [19mm] spanner bar to assure shaft alignment and eliminate binding due to irregular floor conditions. Seats shall be certified to withstand 350,000 lifting cycles and a 600lb static load without failure.
4. ***ED. NOTE: SELECT SEAT COVER OPTION.*** Standard Bottom Cover: Seat shell/bottom shall be constructed of polypropylene plastic to provide a durable yet aesthetic design. The cover shall protect the mechanical parts of the lifting hinge and upholstered seat topper. The shell / bottom shape shall compliment the overall design of the chair.
5. ***ED. NOTE: SELECT SEAT COVER OPTION.*** Fully Enveloped Bottom Cover: Seat shell/bottom cover shall be constructed of polypropylene plastic covered with the specified upholstery laminated with foam for distinctive styling. Tailoring shall display a superior level of design workmanship and fit. Seams shall be straight, continuous and neat, without unsightly puckering.

6. ***Ed Note: SELECT SEAT FOAM OPTION.*** Selection of Standard, Plush, or Ultra Plush seat foam.
7. ***Ed Note: SELECT SEAT COVER TAILORING. (Standard) Waterfall – (Optional) Quilted*** (select quilt pattern I, II, III or IV).

B. Performance Series - Polymer Seat

1. Seat assembly: The seat assembly shall consist of a stylish molded polyethylene seat comprising an ergonomic dual contour top surface, a structurally contoured bottom surface, a dual sprung lifting mechanism and associated polymer trim covers. Seat shall have the ability to achieve a full fold position when rearward pressure is applied. Superior comfort shall be derived through careful ergonomic engineering and enhanced comfort may be achieved through the addition of an optional resilient rubber pad recessed into a portion of the seating surface.
2. Polymer seat: The polymer seat shall be constructed of blow-molded high density polyethylene with structural ribbing integrated into the aesthetics of the design to provide adequate strength. The top seating surface and appropriate surfaces on the bottom side shall be textured to enhance the visual appeal and mask typical parasin marks from the blow molding process. The top seating surface shall have no “witness lines” from tooling size inserts but shall have a recessed design reveal to outline the area for a recessed pad option. All structural fasteners shall be molded into the polymer seat.
3. Seat mechanism: Seat lifting mechanism shall use lubricated lifting springs and rubber end stops to provide whisper quiet fail-safe operation. The seat structure shall rotate on a 3/4” [19mm] spanner bar to assure shaft alignment and eliminate binding due to irregular floor conditions. Seats shall be certified to withstand 350,000 lifting cycles and a 600lb static load without failure. The 2 individual seat lifting mechanisms shall be hidden and protected from dirt and contamination with an injection-molded cover, attaching to the polyethylene seat.

ED. NOTE: SELECT BACK TYPE FROM THE FOLLOWING.

C. Classic Series Back (Plastic Outer Back Cover)

1. The outer back panel shall be constructed of injection molded polypropylene Plastic. The panel shall be no less than 27” in length and conceal the rear and sides of the upholstered inner panel. The panel shall extend below the rear of the seat to protect the chair occupant s back.
2. The inner upholstered panel shall be 5/8” (15mm) 11 ply thick-formed hardwood with an ergonomically engineered contour. The wings for attachment of chair back to standard shall be not less than 14 ga (1.9mm) and will be attached via concealed fasteners. Wings shall position the chair back at one of three positions: 15, 18, or 21 degrees. There shall be no

exposed fasteners above the seat. Chair back upholstery shall exhibit a high degree of workmanship and customization.

3. **ED Note: SELECT BACK SHAPE AND HEIGHT:**
 - a. **Soft Square - 33"**: The top corners of the back are conically shaped for stylish looks and a timeless appearance. Overall back height is 33" above the floor allowing proper shoulder support of the chair occupant. The back surface shall be contoured to facilitate proper posture of a seated individual.
 - b. **Soft Square – 36"** The top corners of the back are conically shaped for stylish looks and a timeless appearance. Overall back height is 36" above the floor allowing proper shoulder support of the chair occupant. The back surface shall be contoured to facilitate proper posture of a seated individual.
 - c. **Round – 33"** The top of the back is radiused for stylish looks and a timeless appearance. Overall back height is 33" above the floor allowing proper shoulder support of the chair occupant. The back surface shall be contoured to facilitate proper posture of a seated individual.
 - d. **Round – 36"** The top of the back is radiused for stylish looks and a timeless appearance. Overall back height is 36" above the floor allowing proper shoulder support of the chair occupant. The back surface shall be contoured to facilitate proper posture of a seated individual.
4. **Ed Note: SELECT BACK FOAM TYPE. 2"(51mm) cut, 3"(76mm) cut, Contoured Foam.**
5. **Ed Note: SELECT BACK COVER TAILORING. Waterfall, Horizontal Pleat, Quilt -I, Quilt - II, Quilt - III, Quilt-IV.**

D. Designer Series Back (Wood Veneer or Laminate Outer Back Panel)

1. The outer back panel shall be constructed of hardwood inner veneers with a decorative wood veneer or high pressure laminate outer layer. The panel shall be no less than 27" in length with a fabric welt cold to conceal any gaps between the inner and outer panels and protect the panel edge from damage. The panel shall extend below the rear of the seat to protect the chair occupants back.
2. The inner upholstered panel shall be 5/8" (15mm) 11 ply thick-formed hardwood with an ergonomically engineered contour. The wings for attachment of chair back to standard shall be not less than 14 ga (1.9mm) and will be attached via concealed fasteners. Wings shall position the chair back at one of three positions: 15, 18, or 21 degrees. There shall be no exposed fasteners above the seat. Chair back upholstery shall exhibit a high degree of workmanship and customization.
3. **ED Note: SELECT BACK SHAPE AND HEIGHT:**
 - a. **Soft Square - 33"**: The top corners of the back are conically shaped for stylish looks and a timeless appearance. Overall back height is 33" above the floor allowing proper shoulder support of the chair occupant. The back

surface shall be contoured to facilitate proper posture of a seated individual.

- b. **Soft Square – 36”** The top corners of the back are conically shaped for stylish looks and a timeless appearance. Overall back height is 36” above the floor allowing proper shoulder support of the chair occupant. The back surface shall be contoured to facilitate proper posture of a seated individual.
 - c. **Round – 33”** The top of the back is radiused for stylish looks and a timeless appearance. Overall back height is 33” above the floor allowing proper shoulder support of the chair occupant. The back surface shall be contoured to facilitate proper posture of a seated individual.
 - d. **Round – 36”** The top of the back is radiused for stylish looks and a timeless appearance. Overall back height is 36” above the floor allowing proper shoulder support of the chair occupant. The back surface shall be compound contoured to facilitate proper posture of a seated individual.
4. **Ed Note: SELECT BACK FOAM TYPE. (Standard) 2”(51mm)cut, 3”(76mm)cut, Contoured Foam.**
 5. **Ed Note: SELECT BACK COVER TAILORING. (Standard) - Waterfall, (Optional) - Horizontal Pleat, Quilt -I, Quilt - II, Quilt - III, Quilt-IV.**
- E. Soft SideSeries Back (Upholstered Outer Back Panel)
1. The outer back panel shall be constructed of a hardwood plyform panel covered with the specified upholstery fabric for distinctive styling. The panel shall be no less than 27” in length with a fabric welt cord to conceal any gaps between the inner and outer panels and protect the panel edge from damage. The panel shall extend below the rear of the seat to protect the chair occupant s back.
 2. The inner upholstered panel shall be 5/8” (15mm) 11 ply thick-formed hardwood with an ergonomically engineered contour. The wings for attachment of chair back to standard shall be not less than 14 ga (1.9mm) and will be attached via concealed fasteners. Wings shall position the chair back at one of three positions: 15, 18, or 21 degrees. There shall be no exposed fasteners above the seat. Chair back upholstery shall exhibit a high degree of workmanship and customization.
 3. **ED Note: SELECT BACK SHAPE AND HEIGHT:**
 - a. **Soft Square - 33”:** The top corners of the back are conically shaped for stylish looks and a timeless appearance. Overall back height is 33” above the floor allowing proper shoulder support of the chair occupant. The back surface shall be contoured to facilitate proper posture of a seated individual.
 - b. **Soft Square – 36”** The top corners of the back are conically shaped for stylish looks and a timeless appearance. Overall back height is 36” above the floor allowing proper shoulder support of the chair occupant. The back surface shall be contoured to facilitate proper posture of a seated individual.

- c. **Round – 33”** The top of the back is radiused for stylish looks and a timeless appearance. Overall back height is 33” above the floor allowing proper shoulder support of the chair occupant. The back surface shall be contoured to facilitate proper posture of a seated individual.
- d. **Round – 36”** The top of the back is radiused for stylish looks and a timeless appearance. Overall back height is 36” above the floor allowing proper shoulder support of the chair occupant. The back surface shall be contoured to facilitate proper posture of a seated individual.
- 4. **Ed Note: SELECT BACK FOAM TYPE. (Standard) 2”(51mm) cut, 3”(76mm) cut, Contoured Foam.**
- 5. **Ed Note: SELECT BACK COVER TAILORING. (Standard) - Waterfall, (Optional) - Horizontal Pleat, Quilt -I, Quilt - II, Quilt - III, Quilt-IV.**

F. Performance Series - Polymer Back

- 1. Back assembly: The back assembly shall consist of a stylish molded polyethylene back comprising the Classic Quattro ‘soft square” design with the top corners of the back conically shaped for stylish looks and a timeless appearance, an ergonomic dual contour front surface to facilitate proper posture of a seated individual, a structurally contoured rear surface, and steel attachment wings. Overall back height is 33” above the floor allowing proper shoulder support of the chair occupant. Aesthetic enhancements to the Performance Quattro chair may be achieved through unique “design patterns” molded into the center portion of the polymer back. Superior comfort shall be derived through careful ergonomic engineering and enhanced comfort may be achieved through the addition of an optional resilient rubber pad recessed into a portion of the back surface.

ED note: SELECT BACK INSERT STYLE:

- 2. Polymer back: The polymer back shall be constructed of blow-molded high density polyethylene with structural ribbing integrated into the aesthetics of the design to provide adequate strength. The front surface and appropriate surfaces on the back side shall be textured to enhance the visual appeal and mask typical parasin marks from the blow molding process. The front surface shall have no “witness lines” from tooling size inserts. A recessed design reveal shall outline the center area of the back to choose a style: textured plain, “louvered”, “jungle”, padded and recessed or custom design pattern. The wings for attachment of chair back to standard shall be not less than 14 ga (1.9mm) and will be attached via fasteners molded into the polymer back. Wings shall position the chair back at one of two positions: 18, or 21 degrees.

ED. NOTE: COORDINATE FOLLOWING PARAGRAPHS WITH SELECTION MADE UNDER PRODUCT DESCRIPTION. SELECT STEEL OR CAST IRON STANDARDS.

G. Steel Standards:

1. Standards shall be 1”[25mm] x 3”[76mm] x 16 gauge [1.5mm] seamless oval mechanical tubing. Standards utilizing an open seam (not welded) shall be considered unacceptable.
2. The top of the standard shall provide for vandal resistant attachment of the armrest, without the use of exposed fasteners on the surface of the arm.
3. ***ED. NOTE: SELECT FLOOR MOUNTED STANDARDS*** Floor mounted standards shall have a 14 gauge [1.9mm] formed steel foot. The formed foot shall be full perimeter welded to the upright tubular member. The floor mount standards shall be manufactured to match floor inclines in order to maintain proper seat height and angle.
4. ***ED. NOTE: SELECT RISER MOUNTED STANDARDS*** Riser mounted standards shall have a 7 gauge [4.5mm] steel plate slotted to allow lateral adjustment during installation, and shall be full perimeter welded to the tubular standards.

H. Cast Aluminum Standards:

1. Standards shall be die cast Aluminum AA380 grade.
2. ***ED. NOTE: FLOOR MOUNT STANDARDS*** Standards shall be floor attached, designed to maintain a constant seat height to floor.
3. ***ED. NOTE: RISER MOUNT STANDARDS*** Standards shall be riser attached.
4. Cast Aluminum Standards shall be an integral aesthetic part of the chair’s appearance and do not require the use of end panels.

I. Nostalgic End Standards:

1. Provide decorative cast standards at aisle ends to create a nostalgic look that compliments the historic styling or theme of any theatre or performing arts venue.
2. Nostalgic standards shall allow customization to include an integral logo or design within a designated area on the casting.
3. Nostalgic standards shall provide raised decorative features within the casting that can be accented with contrasting colors to the base standard color.
4. Nostalgic standards shall provide for attachment of solid hardwood armrest by means of concealed fasteners. Armrest shall include a decorative scroll to enhance the over all design and look of the chair.
5. The legs and mounting pads of the cast end standards shall be designed to conceal the floor attachment hardware (anchors) when viewed from the aisle.
6. Design Nostalgic ends standards for attachment of common seats and backs used throughout the facility without the need of unique seat or back mounting brackets therefore limiting the need for additional attic stock.

J. Seat Hinges:

1. Seat hinges shall be fully contained within the seat pan and fitted with a pair of independent [nylon bushings](#).
2. Each of the independent seat hinges shall be fitted with double acting; self-centering, pre-loaded coiled seat return spring.

3. Seat hinge and spring installation shall be designed not to require periodic adjustment or lubrication.

K. Finish:

1. Finish for Steel / Aluminum Components: (Indoor) Material shall be pre-treated in an iron phosphate wash system prior to finish application. Finish shall be a specially blended polyester T.G.I.C./Epoxy powder coating with a minimum dry film thickness of 1.5 mils.
2. Injection molded polypropylene or nylon: Shall be pigmented, in one of manufacturers standard colors and have a textured surface.
3. Fabric: Upholstery material shall be 100% Marquesa Lana continuous filament Olefin yarn with one of manufacturer's standard fabric offerings.
4. Color: Shall be per manufacturer's standards. Seating Contractor shall submit color samples for owner's approval prior to manufacture.

ED. NOTE: COORDINATE FOLLOWING PARAGRAPHS WITH SELECTION MADE UNDER PRODUCT DESCRIPTION.

J. Armrests:

5. Armrests, Injection Molded Plastic: Armrests shall be of injection molded, textured polypropylene. Armrest to be secured to standard with concealed fasteners.
6. Armrests, Stained Hardwood: Armrests shall be solid hardwood without defects. All edges shall be eased for comfort. Armrest finish shall consist of a single coat of waterbase stain, followed by a sealer coat, scuff sanding, and a waterbase clear topcoat. Stain shall be selected from manufacturer's standard offerings. Armrest to be secured to standard with concealed fasteners.
7. Armrests, Painted Hardwood: Armrests shall be solid hardwood without defects. All edges shall be eased for comfort. Armrest finish shall consist of two coats of waterbase paint with scuff sanding between coats, followed by a waterbase clear top coat. Paint shall be selected from manufacturer's standard offerings. Armrest to be secured to standard with concealed fasteners.
8. Armrests, Upholstered: Armrests shall be tempered hardboard core with polyurethane foam padding and covered with matching upholstery fabric. Armrest to be secured to standard with concealed fasteners.

2.05 FASTENINGS

A. Chair Assembly

1. All welds shall be made at the factory by welders that are certified on the equipment and process used.
2. All structural connections shall be made with S.A.E. stress rated zinc plated or, black oxide steel bolts, washers and nuts.

B. Concrete Floor Attachment

1. Chair stanchions shall each be attached by means of two 1/4"[6mm] mechanical wedge anchors set in holes drilled to a minimum depth of 2"[50mm] in the concrete.
 - a. Wedge anchors shall be tested to ASTM E488 criteria and listed by ICBO and SBCCI. Wedge anchors feature a type 18-8 stainless steel split expansion ring and a threaded stud bolt body and integral cone expander, and a nut and washers. Stanchion shall be placed on the bolts, stanchions to be permanently secured with a flat washer, lock washer and nut.

B. Concrete Riser Attachment

1. Chair stanchions shall each be attached by means of two 3/8"[10mm] threaded rods secured into concrete with a fast curing acrylic adhesive. Adhesive and rods are set in holes drilled to a minimum depth of 2 1/2"[64mm] in the concrete.
2. Threaded rods shall be of approved type with zinc-plate finish or made of stainless steel to suit environmental conditions.
3. Acrylic Adhesive shall be in conformance with ASTM Type IV, Grade 3, and covered by ICBO evaluation.
4. Stanchion to be placed on the bolts, stanchions to be permanently secured with a flat washer, lock washer and nut.

C. Wood Floor Attachment.

1. Chair standards shall each be attached by means of four (4) 1/4 inch [6mm] x 1 3/4 inch [44mm] lag screws and flat washer set in holes drilled to a depth of not less than 1 1/2 inches [38mm] in the wood.

2.06 ACCESSORIES

ED. NOTE: SELECT ACCESSORIES, AS REQUIRED. CUPHOLDERS, END PANELS, AISLE LIGHTS, TABLETS, CHAIR NUMBERS, ROW LETTERS AND DONOR PLATES HAVE MULTIPLE SELECTIONS.

- A. Cupholder Armrest, Plastic: Armrest with integral molded cupholder made of injection molded nylon with textured plastic arm surface.
- B. Cupholder Armrest, Upholstered: Armrest with integral molded cupholder made of injection-molded nylon with an upholstered armrest surface.
- C. Cupholder Armrest, Solid Hardwood: Armrest with integral molded cupholder made of injection-molded nylon with a solid hardwood armrest surface.
- D. Rear Mount Cupholder, Rear mount polymer cup holder mounts between to adjacent backs via friction clip attachment.
- E. Armrest, Easy Access: Armrest shall hinge on end standards to allow easy access for disabled patrons. Swing-up end arms shall be provided for one percent of fixed seating capacity to meet the Americans with Disabilities Act (ADA). Each accessible chair shall include the universal handicap symbol on the end aisle standard for clear identification.
- F. Standard, Armless: Aisle end stanchion shall have armrest removed and replaced with an injection molded plastic cover to hide back mounting hardware. Armless stanchions allow easy access for disabled patrons. Armless end stanchions shall be provided for one percent of fixed seating capacity to meet the Americans with Disabilities Act (ADA). Each accessible chair shall include the universal handicap symbol on the aisle standard for clear identification and is located in a vandal resistant recess and is secured with adhesive.
- G. End Panels, Plastic Laminate: End panels to be 1/2"[13mm] MDF, finished with laminated plastic. (Select End Panel Shape: Quattro Style, SoftSquare, Round or T1 Tablet Arm) End panels to be furnished per Plan of Seating.
- H. End Panels, Veneer: End panels to be 1/2"[13mm] MDF, finished with wood veneer. (Select End Panel Shape: Quattro Style, SoftSquare, Round or T1 Tablet Arm) End panels to be furnished per Plan of Seating.
- I. End Panels, Upholstered: End panels to be 1/2"[13mm] MDF, **finished with laminate plastic with an upholstered pad applied to the panel face**. (Select End Panel Shape: Quattro Style, SoftSquare, Round or T1 Tablet Arm) End panels to be furnished per Plan of Seating.
- J. Standard Chair Numbers: Black text with gray background on a 23/32" x 2 7/32" [18.5mm x 56.5mm] elliptical Lexan plate. Plate fitted in a vandal resistant recess located **in front edge of plastic seat cover** and secured with adhesive.
- K. Brushed Aluminum Chair Numbers: Black text with gray background on a 23/32" x 2 7/32" [18.5mm x 56.5mm] elliptical aluminum plate. Plate fitted in a vandal resistant recess located **in front edge of plastic seat cover** and secured with two aluminum pop rivets.
- L. Bronzed Anodized Aluminum Chair Numbers: Black text with bronze background on a 23/32" x 2 7/32" [18.5mm x 56.5mm] elliptical aluminum plate. Plate fitted in

a vandal resistant recess located in [front edge of plastic seat cover](#) and secured with two aluminum pop rivets.

- M. Brass Chair Numbers: Black text with brass background on a 23/32" x 2 7/32" [18.5mm x 56.5mm] elliptical aluminum plate. Plate fitted in a vandal resistant recess located in [front edge of plastic seat cover](#) and secured with two aluminum pop rivets.
- N. Stainless Steel Chair Numbers: Black text with silver background on a 23/32" x 2 7/32" [18.5mm x 56.5mm] elliptical aluminum plate. Plate fitted in a vandal resistant recess located in [front edge of plastic seat cover](#) and secured with two aluminum pop rivets.
- O. ECOGLO Chair Numbers: Black text with pale green background on a 23/32" x 2 7/32" [18.5mm x 56.5mm] elliptical Aluminum plate with photo luminous coating. Plate fitted in vandal resistant recess located in [front edge of plastic seat cover](#) and secured with two aluminum pop rivets.
- P. Standard Row Letters: Black text with gray background on a 23/32" x 2 7/32" [18.5mm x 56.5mm] elliptical Lexan plate. Plate fitted in a vandal resistant recess located in rear of armrest and secured with adhesive.
- Q. Brushed Aluminum Row Letters: Black text with gray background on a 23/32" x 2 7/32" [18.5mm x 56.5mm] elliptical aluminum plate. Plate fitted in a vandal resistant recess located in rear of armrest and secured [by means of two mechanical fasteners](#).
- R. Bronzed Anodized Aluminum Row Letters: Black text with bronze background on a 23/32" x 2 7/32" [18.5mm x 56.5mm] elliptical aluminum plate. Plate fitted in a vandal resistant recess located in rear of armrest and secured [by means of two mechanical fasteners](#).
- S. Brass Row Letters: Black text with brass background on a 23/32" x 2 7/32" [18.5mm x 56.5mm] elliptical aluminum plate. Plate fitted in a vandal resistant recess located in rear of armrest and secured [by means of two mechanical fasteners](#).
- T. Stainless Steel Row Letters: Black text with silver background on a 23/32" x 2 7/32" [18.5mm x 56.5mm] elliptical aluminum plate. Plate fitted in a vandal resistant recess located in rear of armrest and secured [by means of two mechanical fasteners](#).
- U. ECOGLO Row Letters: Black text with pale green background on a 23/32" x 2 7/32" [18.5mm x 56.5mm] elliptical Aluminum plate with photo luminous coating. Plate fitted in a vandal resistant recess located in rear of armrest and secured [by means of two mechanical fasteners](#).
- V. Brushed Aluminum Donor Plate: 7/8" x 3" [22mm x 76mm] oval shaped gray plate. Plate fitted in a vandal resistant recess located in the front of armrest and secured [by means of two mechanical fasteners](#).
- W. Bronzed Anodized Aluminum Donor Plate: 7/8" x 3" [22mm x 76mm] oval shaped bronze plate. Plate fitted in a vandal resistant recess located in the front of armrest and secured [by means of two mechanical fasteners](#).

- X. Stainless Steel Donor Plate: 7/8" x 3" [22mm x 76mm] oval shaped silver plate. Plate fitted in a vandal resistant recess located in the front of armrest and secured by means of two mechanical fasteners.
- Y. T1 Folding Tablet Arm: Tablet arm to be 11 3/4" x 10 1/4" [298mm x 260mm] with rounded corners. Top and bottom surfaces to be high pressure laminate over solid core plywood. Tablet arm to be "Panic Proof" and store within users' chair beneath the armrest.
- Z. T2 Folding Laptop Tablet Arm: Tablet arm to be 18 7/8" x 15 3/4" [480mm x 400mm] with rounded corners. Top and bottom surfaces to be high pressure laminate over solid core plywood. Tablet arm to store within users' chair beneath the seat.
- AA.T2m Folding Laptop Tablet Arm for reduced row spacing: Tablet arm to be 18 7/8" x 12 1/2" [480mm x 320mm] with rounded corners. Top and bottom surfaces to be high pressure laminate over solid core plywood. Tablet arm to store within users' chair beneath the seat.
- BB.Cast Logo: Logo to be 6" [150mm] circle and manufactured of die-cast aluminum or zinc. Logo secured to the stanchion with tamper-proof hardware.
- CC.Graphic Logo: Logo to be 6" [150mm] circle and manufactured of 0.5mm thick vinyl. Logo secured to the stanchion with self-adhesive backing.
- DD.Quick-Link System: Power or Power and Data connections integrated into the design of the chair with the ability to be added at a later date without disassembly to existing chairs.
- EE.Removable Chairs: Provide chairs to be floor mounted and ganged in groups of one, two, or three chair units for easy removal. Chair standards shall be mounted to a painted steel skid base. Skid base with chairs shall be easily removed from the concrete floor by means of flush mounted internally threaded expansion anchors positioned under each leg of the skid. When removed, the anchor holes are filled by flat head bolts to provide a flat surface and prevent dirt and debris from entering.
- FF. Portable Stacking Quattro Chairs: Provide portable chairs with common styling of specified chairs for integrated use into seating layouts. Common uses are for ADA seating locations or Additional Portable Floor Seating. Seats can be easily stacked [4 high] and removed by one person via a portable dolly into storage when not required.
- GG.Aisle Lights: Aisle lights will operate from 24 volts (low voltage) requiring a transformer system (supplied by Hussey). "Low Voltage Luminaire" electrical system approved by Underwriters Laboratories Inc. Aisle lights to be mounted onto end panel or aisle standard and will be furnished with cover as an integral part of the chair standard. Select: Low or High Mount)
- HH.Worship Organizer I: Provide a durable organizer capable of holding a worship book(s). The design shall include additional compartments for convenient storage of other items such as communion cups, pamphlets, envelopes and pens. The organizer shall mount securely to the rear of the chair back or pew in a manner

so it will not project into the aisle space. Include as an option the ability to add a custom message or symbol in a visible location on the organizer.

- II. Worship Organizer II: Provide a durable organizer with compartments for holding pen/pencils, communion cups, envelopes and pamphlets. The organizer shall mount securely to the rear of the chair back or pew in a manner so it will not project into the aisle space. Include as an option the ability to add a custom message or symbol in a visible location on the organizer.

- JJ. Custom Wood Pew End: Provide a decorative wood panel at the end of each row of chairs to create the appearance of traditional pew seating along the sides of the aisle. Design shall conceal the chair supports and fasteners without impeding on the egress space between seating rows. Include as an option the ability to add a custom shape or symbol on the aisle side of the panel.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verification of Conditions: Verify areas to receive fixed upholstered chair seating are 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.

3.02 INSTALLATION

- A. Manufacturer's Recommendations: Comply with seating manufacturer's recommendations for product installation requirements.
- B. General: Install fixed upholstered chair system 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.

3.03 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.

3.04 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.

END OF SECTION

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