



CITY OF CHARLESTON
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Addendum #3

2024-38 Charleston Coliseum & Convention Center Seating Project

This addendum is being issued to provide additional seating specification details to vendors. The specifications provided are not intended to exclude any individual/company from offering a proposal. Services offered which meet or exceed the specifications provided will be considered.

Fixed Audience Seating:

- A. Permanent arrangement of fixed audience seating as shown on seating layout drawings.
 1. Approved manufacturers are subject to compliance with the requirements outlined herein.
 2. Basis-of-design for fixed audience seating **is the following or equal:**
 - a. Irwin Centura or equivalent product design
 - b. Hussey Fusion, Metro or equivalent product design
- B. Chair units and specified accessories shall be mounted to a extruded, anodized aluminum horizontal rail or beam. Horizontal beam is supported by not less than 7 gauge steel stanchions spaced at intervals to facilitate cleaning. Stanchions shall be riser mounted where possible and attached as detailed on seating layout drawings. Horizontal rails are attached to stanchions using hinged cast iron clamps and zinc, nickel-plated hardware.
 1. Back and seat components shall be one-piece, injection-molded polymer with an ergonomic compound curve. Plastic must be high impact-resistant linear polypropylene with a textured finish. The back assembly shall be certified through routine testing to withstand a not less than a 250 lb. static load test applied approximately 16" above the seat assembly and a 50,000 cycle 40 lb. swing impact test.
 2. Chair Frame:

- a. A black, glass-filled, nylon structure shall be used to connect the seat and back components into a single assembly. The frame shall extend below the seat component to form a two-piece clamp used to secure the assembly to the horizontal rail. The clamp assembly is held together using stainless steel hardware.
 - b. The chair frame acts as a housing for the seat-lift mechanism, which is completely shrouded within the frame and seat component. Seats shall lift automatically to a uniform full-fold position when unoccupied utilizing either gas or spring assisted mechanism. The seat-lift mechanism shall be certified through routine testing to exceed no less than 100,000 cycles during ASTM Designation F851-87 Test Method for Self-Rising Seat Mechanism. In addition, the seat shall withstand a not less than 600 lb. static load test applied approximately 3" from the front edge of the seat assembly and a 50,000 cycle, 125 lb. vertical drop impact test.
- D. Aisle end panels shall be formed from black high impact-resistant linear polypropylene and secured to a black powder coated die-cast aluminum support column below the black high impact-resistant linear polypropylene armrests. The panel/armrest assembly is attached to the horizontal beam with tamper resistant black stainless-steel hardware.
- E. Chair intervals (centers) [and aisle end locations] are to be provided with fixed rail-mount armrests. Armrests are black high impact-resistant linear polypropylene secured to a black glass-filled nylon support column attached to the horizontal beam with tamper-resistant black stainless-steel hardware.
- F. Chair width shall meet seating layout.
- H. Row-lettering and chair-numbering shall be provided for identification of all chairs as shown on approved seating layout drawings. Number plates shall be not less than a 1" diameter black polymer with white sans serif numerals. Number plates shall be placed in the seat edge recess and secured with an adhesive backing. Letter plates shall be not less than a 2-1/4" diameter black polymer with white sans serif letters. Letter plates shall be placed in [aisle panel] [seat frame] recess and secured with an adhesive backing.
- J. Accessible Seating:
 - 1. Shall be designated on the seating layout drawings and designed to allow an individual to transfer from a wheelchair to the chair. The aisle standard shall be equipped with an armrest capable of lifting to a position parallel with the support column, opening sideways access to the seat. Aisle standards so

equipped shall be provided with a label, displaying an easily recognizable "handicapped" symbol. Decorative requirements of aisle standards are waived for the handicapped access standards.

- L. Furnish extra materials from the same production run that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Furnish complete chair assemblies equal to 1%.
 - 2. Provide a sample of seating units for comparison within available product lines

2.3 Telescopic Seating Specification

A. WORK INCLUDED

- i. Manufacture, deliver and install Telescopic Seating System in accordance with applicable codes, the following specifications, and approved drawings.

B. RELATED WORK BY OTHERS

- i. Adequate floor levelness and strength for operation of telescopic seating.
- ii. Adequate wall strength for attachment and operation of wall attached telescopic seating.
- iii. Electrical wiring within the building as required for power operated telescopic seating.

C. SYSTEM DESCRIPTION

- i. Telescopic seating system shall be multiple tiered seating rows comprised of seat and deck components, risers, and supportive understructure.
- ii. Telescopic seating shall be operable on the telescopic principle, stacking vertically in minimum floor area when not in use.
- iii. Telescopic seating shall have the ability to truncate a minimum of individual rows 1 through 4. Option for additional rows to truncate up to row 6 may be proposed as and structure design permits.
- iv. Telescopic seating will include portable sections as identified by entrance areas to the event floor. These portable sections shall include integrated lifting systems to facilitate easy mobility during installation and removal.
- v. The first moving row, on manual sections, shall be secured with release lever. All other rows shall be mechanically locked, operable only upon unlocking and cycling of first row. Power sections shall be secured with mechanical locks as well as the power system, operable upon activating the pendant control.

D. QUALITY ASSURANCE

- i. DESIGN LOAD CRITERIA (STRUCTURAL):
 - a. International Building Code Standard: Comply with requirements of IBC / ICC 300, Chapter 4 "Standard for Bleachers, Folding and Telescopic Seating and Grandstands Assembly Seating," except where other requirements are indicated by the architect/owner.

- ii. Partial Loading Requirements: Telescopic seating governed by IBC 2018, ICC-300 2017, NFPA 102 2016 or NFPA 5000 2018 shall all comply with ASCE 2016, Section 4.3.3 Partial Loading.
- iii. Engineer Qualifications: Manufacturer to employ a registered, licensed Professional Engineer to certify that the equipment to be supplied meets or exceeds the design criteria of this specification.
- iv. Installation: Shall be handled directly by the manufacturer or by a factory certified installation subcontractor.
- v. Product Liability: Certification of insurance coverage of not less than \$5,000,000.
- vi. Welding Processes: To be performed by certified professional welding operators in accordance with American Welding Society – Certified Welding Fabricator, (AWS-CWF), D1,1 "Structural Welding Code-Steel."
- vii. Product Improvements: Equipment provided shall incorporate manufacturer's design improvements and materials current at time of shipment, provided that such improvements and materials are consistent with the intent of these specifications.

E. SUBMITTALS

- i. BID SUBMITTALS
 - 1. Manufacturer's descriptive literature and specifications.
 - 2. List of deviations from these specifications, if any.
 - 3. Certification of Insurance.
 - 4. Six (6) seating projects of similar size, complexity and in service for at least three (3) years.
- ii. JOB SUBMITTALS
 - 1. Shop Drawings showing all equipment to be furnished with details of accessories to be supplied including necessary electrical service to be provided by others. All electrical submittals must include U.L. listing number.
 - 2. Samples of material and color finish as requested by Architect.
 - 3. Warranty, operation and maintenance instructions to the owner upon completion.

F. DESIGN CRITERIA

- i. Telescopic seating shall be designed to support, in addition to its own weight, and the weight of added accessories, a uniformly distributed live load of not less than 100 lbs. per sq. ft. (4.8 kN per sq. m.) of gross horizontal projection. Seat boards and footrest shall be designed for a live load of not less than 120 lbs. per linear foot (1.751 kN per linear m).
- ii. Sway force applied to seats shall be not less than 24 lbs. per linear ft. (350 N per linear m.) parallel to the seats and not less than 10 lbs. per linear ft. (146 N per linear m.) perpendicular to the seats. Sway forces shall not be considered simultaneously applied.
- iii. Railings and connections designed to withstand the following forces applied separately.
- iv. Handrails shall be designed and constructed for:
 - 1. A concentrated load of not less than 200 lbs. (890 N) applied at any point and in any direction.
 - 2. A uniform load of not less than 50 lbs. per ft. (730 N/m) applied in any direction.

The concentrated and uniform loading conditions shall not be required to be applied simultaneously.

- v. Guards shall be designed and constructed for:
 - 1. A concentrated load of not less than 200 lbs. (890 N/m) applied at any point and in any direction along the top railing member and a uniform load of not less than 50 lbs. per ft. (730 N/m) applied horizontally at the required guardrail height and simultaneous uniform load of not less than 100 lbs. per ft. (1460 N/m) applied vertically downward at the top of the guardrail. The concentrated and uniform loading conditions shall not be required to be applied simultaneously.
 - vi. American Institute of Steel Construction (AISC), American Iron and Steel Institute (AISI) and Aluminum Association (AA) design criteria shall be the basis for calculation of member sizes and connections.
 - vii. Wood members shall be designed in accordance with National Forest Products Association, (NFOPA), and National Design Specification for Wood Construction.

G. WARRANTY

- A. The manufacturer shall warrant all work performed under these specifications to be free of defects for a period of one year.
- B. All understructure components shall be warranted for a period of ten years.
- C. Any materials found to be defective within this period will be replaced at no cost to the owner. This warranty shall not include replacements required by Acts of God, war, vandalism, flood, fire, calamity or deliberate abuse or misuse of the equipment.

H. Basis for Seating Specification Designs

- A. Telescopic Seating System design is based on the following:
 - i. Irwin VersaTrack and VersaDeck platform or **equivalent**.
 - ii. Hussey MXP platform or **equivalent**.

I. MATERIALS

- A. See bid documents for complete project requirements, varying configurations and special conditions.

J. FABRICATION

- A. Understructure System:
 - 1. Steel supports and rolling frames shall be constructed from formed steel of the size and shape necessary to support the design loads. All support bracing shall begin at Row 2 and be of diagonal or "knee" type for rigidity or equal. Diagonal bracing to be minimum 1 1/2" x 1 1/2" 14-gauge square tubing or equal. Bracing fabricated from open-sided channel, angle iron or flat strap "X" type bracing is unacceptable.
 - 2. Wheels shall not be less than 5" diameter x 1 3/8" non-marring soft rubber face to protect wood or synthetic floor surfaces.
 - 3. Each fully skirted wheel channel shall be formed of not less than 12-gauge steel and continuously in contact with adjacent channels by means of an Integral

Alignment System (IAS) or equal and include nylon glides to eliminate any metal to metal contact. The IAS function is to maintain maintains proper alignment between adjacent wheel channels for smooth and consistent operation while eliminating the potential for accidental row separation. Wheel channel alignment systems with metal to metal contact requiring periodic lubrication or that utilizes a guide rod system that can be bent or damaged will not be acceptable.

4. Each cantilever arm shall be triple-formed from not less than 10-gauge steel, securely welded to the post assembly and include a nylon cantilever pad to ensure smooth operation. The cantilever pad shall also provide a firm base when in the occupied position and provide a solid feel when walked on.
5. Vertical columns shall be high tensile steel structural tube to meet design criteria. Minimum column size to be 2" x 3" 14-gauge structural tube or equal, welded to a minimum of 2' wide wheel channel using 360 degrees of weldment.
6. Deck support members shall be double formed from not less than 14-gauge steel and connect the front nosing and rear riser members. Each deck support shall include a unique dual-purpose roller that provides smooth support during operation. The deck support roller shall also include a 3/4" wide shoulder that's encapsulated by the deck support on the row above in order to maintain proper upper alignment while delivering consistent, repeatable operation.
7. Rear riser to be not less than a 14 ga. roll formed structural member providing strength to the rear of each deck assembly. Rear riser to be double bolted with locking hardware to each deck support and post assemble for a safe and solid connection.

K. SEAT SYSTEMS

A. Chair Designation

1. Centura, Fusion, Metro or comparable rail mounted chair designs: Supply fold-down chairs on telescoping platforms and movable telescoping sections with seats, backs, and a full complement of standards, fold-down mechanism and all support structure required for a fully functional seating system.
 - a. Platform chairs shall have a modern look with complementary style lines as indicated in item 2.3 (K.A.1), comfortable contours and subtle texture to achieve maximum spectator comfort.
 - b. Each chair to be constructed from durable, scuff resistant injection molded high density polypropylene plastic, designed to support over not less than 700 pounds per chair.
 - c. Seat heights shall be maintained at a minimum of 17 ½ inches. Lower seat heights which detour from spectator comfort will not be accepted.
 - d. Actual seat width shall not be less than 17 ¼ inches.
 - e. Back heights to be a minimum of 31 ½" and designed to fold within the depth of the deck when in the stored position. Chairs extending beyond the face of the unit when closed will not be acceptable.

- f. Chairs shall be rail mounted and allow for complete flexibility in chair layout. Seat spacing to be available from 18" to 24", and field adjustable.
- g. Each chair shall have the capability of using seat numbers and row letters at the aisle locations. Seat numbers and row letters to have a stylish design to enhance the aesthetic value of the seat and be recessed to protect against vandalism.
- h. Select seating colors from manufacturer's standard colors. Custom colors may be considered as an option.
- i. Securely fasten each chair and arm assembly to a heavy-duty, clear anodized aluminum rail using locking hardware.
- j. Chair Operation:
 - 1. Semi-Automatic Assist Operation: The raising and lowering of up to 14 chairs per operation shall be accomplished with an internal lift system to allow 1 person operation of lifting or individual chair sections. Locking of chairs in the use position shall be totally independent of platform operation. Lowering of each row of chairs shall be done by simply depressing a release lever allowing the chairs to fold flat on the deck surface via an assisted drop system to eliminate excessive downward forces and allowing for single person operation. Locking and hinge system shall be shrouded over their total length to simplify cleaning and prevent debris from interfering with the latching mechanism.

B. Chair Type:

- 2. Back and seat components shall be one-piece, injection-molded polymer with an ergonomic compound curve. Plastic must be high impact-resistant linear polypropylene with a textured finish. The back assembly shall be certified through routine testing to withstand a not less than a 250 lb. static load test applied approximately 16" above the seat assembly and a 50,000 cycle 40 lb. swing impact test.
 - a. Design basis shall be as stated in 2.3(K.A.1)
- 2. Chair Frame:
 - a. A black, glass-filled, nylon structure shall be used to connect the seat and back components into a single assembly. The frame shall extend below the seat component to form a two-piece clamp used to secure the assembly to the horizontal rail. The clamp assembly is held together using stainless steel or equal hardware.
 - b. The chair frame acts as a housing for the seat-lift mechanism, which is completely shrouded within the frame and seat component. Seats shall lift automatically to a uniform full-fold position when unoccupied. Seat-lift shall be accomplished with a gas or spring mechanism. The seat-lift

mechanism shall be certified through routine testing to exceed not less than 100,000 cycles during ASTM Designation F851-87 Test Method for Self-Rising Seat Mechanism. In addition, the seat shall withstand not less than a 600 lb. static load test applied approximately 3" from the front edge of the seat assembly and a 50,000 cycle, 125 lb. vertical drop impact test.

C. Deck System:

1. Deck to be constructed from an extruded aluminum perimeter frame that provides unparalleled strength and resists deflection when occupied. The Deck frame shall include an all welded construction with metal protective reinforcements at each corner. Aluminum shapes shall be extruded with the option of not less than 3/4" decking allowing the deck panel to sit flush with the top of the aluminum extrusion. Traditional deck construction using an independent nose beam and end caps will not be accepted.
2. The extruded aluminum perimeter deck frame shall include a Quick-Connect feature allowing all deck related accessories to quickly and easily clamp to the frame without the use pockets or other secondary means of attachment.
3. To ensure each deck provides a solid walking surface, integrated deck supports shall be included with all deck attachments occurring from the bottom side leaving the deck surface free of any visible hardware.

D. Decking:

1. Aluminum decking shall be interlocking, non-slip, ribbed, extruded aluminum shapes. Aluminum decking to be minimum 3/4" thick extrusion with a minimum of 1/8" wall thickness providing a solid walking surface. Ends to be protected with aluminum end caps with turned edges to prevent any sharp edges or snagging hazards.
2. Aluminum planks shall lay parallel to the aluminum nose and rear riser beam. Aluminum planks that are perpendicular to the row will not be acceptable.

E. Nosing:

1. Clean anodized aluminum nosing along the front and end of the deck surface shall be supplied. Aluminum shall a structural profile with a minimum of 3" height, 2 1/2" deep with a 3/4" thick extrusion and minimum of 1/8" wall thickness.

F. Rear Risers:

1. Rear riser shall be one piece, formed, 14-gauge steel with a black powder coated epoxy finish.

G. Finish: For rust resistance in standard conditions all painted surfaces shall be finished in textured Epoxy Powder Coated Semi-Gloss Black or recommended colors based on seating design and color selections.

L. ACCESSORIES

- A. Aisles shall be footrest level shall be included according to the bid documents. Aisles at the footrest level shall have non-slip treads on the top front edge.

- B. Intermediate aisle steps shall be provided. Steps are permanently attached closed design and include proper support to prevent deflection when walking on. The steps shall be finished with the same surface material as the adjacent decking.
- C. Aisle Handrails.
 - 1. Store and Deploy aisle handrails shall be provided. Aisle railings shall be an individual rail design located on every other row starting at row two (2). Railing to be constructed of not less than 1 1/2" 11 ga. round steel tubing, finished in a textured powder coated epoxy. Aisle rails spanning several rows, or rails made from square tubing will not be acceptable. For safety, rail pockets that protrude beyond the face of the bleacher while in the closed position or railings with blunt, non-turned ends will not be allowed.
- D. Aisle lighting.
 - 1. Supply LED aisle lighting in the nose beam and intermediate aisle step of each row. Aisle lights to be clear, bright LED's spaced at 1 1/2", producing .08 candle power per bulb, and not less than 1.01 lumens. All lights to be low voltage (24 volts max.) and include all necessary transformers and wiring. All components to be U.L. listed.
- E. End rails.
 - 1. Aluminum rails shall be supplied at all required locations and as shown on architectural plans. Railings to be constructed from 1 1/4" schedule 40 aluminum tube with not less than a 1.66" O.D. and 1/2" round aluminum infills. Railings to have a clear anodized finish. All railings shall feature a Quick-Connect design allowing for quick and easy installation or removal and include a tool or toolless operation. The Quick-Connect design shall engage with the aluminum extruded deck profile, resulting in a safe and solid connection without interfering with the deck surface. Railings shall begin on row one and meet all national building codes.
- F. Front / rear rails shall be supplied as shown on the architect's plans. Railings shall meet all code requirements for structural integrity and sizing based on the rail location and match the construction of the end rails in both appearance and functionality.
- G. Programming supports shall be supplied in all locations as shown on the architect's plans. Programming supports to be located at approximately 36" on center and be adjustable with the ability to span several rows. Programming supports shall clamp to the aluminum nose beam for quick attachment or removal.
- H. Armrest
 - 1. Armrest Type: Armrests shall be injection molded plastic and shall be securely attached to the support structure by concealed fastener, capable of rotating to a vertical position for storage. Armrest rotation mechanism shall be completely shrouded to prevent any pinching or snagging hazard and designed to accept a minimum 1 3/4" row letter identification tag.
 - 2. Cupholder armrests shall be injection molded plastic and shall be securely attached to the support structure by concealed fastener, capable of rotating to a vertical position for storage. Armrest rotation mechanism shall be completely

shrouded to prevent any pinching or snagging hazard and designed to accept a minimum 1 3/4" row letter identification tag.

- I. Seat number and row letter identification shall be supplied with manufacturer's standard size and color as shown on the approved seating layout.
- J. Vinyl end curtain closures.
 - 1. Vinyl end curtains with individual strip design shall be provided to limit unauthorized access to the underside of the telescopic system. Curtain strips shall be equal to the depth of each seating row, complete with a 2" overlap with sewn in Velcro for securing adjacent curtain. Each row end shall have heavy-duty Velcro securely attached to the end cap using minimum 1/8" steel rivets for attaching curtains. End curtains to be constructed of a sturdy vinyl material. Color to be selected from manufacturer's standard selection.
- K. Due to permanent rail storage, rail carts may be proposed as a transport option in the size and quantity to facilitate transport to storage but are not a requirement of this bid.
- L. Gap closures between movable sections to be not more than 6" wide with provided "T" moldings to fill each gap between sections for spectator safety.
- M. Transport systems for portable units.
 - 1. Integral lift System: Provide each portable seating section with a minimum of 2 self-contained integral lifting mechanism units. Each lift unit to be constructed from heavy gauge steel designed to support the overall weight, as well as the forces applied in relocating the seating unit. Each seating section shall be equipped with a minimum of 4 swiveling Tri-Caster assemblies (12 individual caster wheels). The total number and type of caster to be determined by the manufacturer based on the overall weight and flooring surface. To reduce the effort needed to relocate the seating unit and allow greater mobility, each caster assemble shall be attached to a caster plate that swivels independently of the tri-casters by means of high quality ball bearings. Each seating section shall be equipped with lifting unit operating connections at both ends of section for ease of operation. Architect/owner to coordinate the compatibility of the portable seating and floor surface with the flooring manufacturer.

M. PROPULSION SYSTEM

- A. FRICTION POWER: Drive System shall be furnished on each seating group to open and close the telescopic units. Each individual section shall include adequate number of drive systems integrated into the first moving row of understructure to achieve smooth and efficient operation.
 - 1. Each drive power system shall include large diameter friction rollers to develop tractive force adequate to open and close the system. Each roller to include non-marring rubber covering.
 - 2. Electrical motors for each section shall be heavy-duty and high efficiency gear reduction motors. The shaft diameter for the gear motor and rollers shall be a minimum of 1" and be connected by a 1" schedule 40 drive shaft.

3. All roller chain and sprockets used throughout the drive system shall be a minimum of #40 in size. Each drive unit shall be designed to include a safety shroud around the chain and sprocket for overall safety.
 4. The power units shall develop tractive forces adequate to operate the seating units under normal conditions but inadequate to operate should significant obstacles be encountered.
- B. Operation of the seating shall be accomplished with the use of a walk along steerable pendant control. Steering feature shall allow the operator to make subtle adjustments during the opening/closing and ensuring proper alignment.
 - C. Manufacturer shall provide all wiring from power source within bleacher seating including pendant control. Removable pendant control shall be handheld with forward and reverse button, plugging into a single receptacle. Electrical contractor shall provide a 208/230V, 5 wire 3-phase 60 HZ power source behind each group of seating. Amperage to be as specified by seating manufacturer depending on the number of power units required. For wall-attached installations, power source to terminate in a surface mounted junction box above floor. For reverse units, power source to terminate in a junction box, flush mounted under first seating row in center of group. Electrical contractor shall perform the connections to the seating equipment at the junction box. All electrical parts and wiring shall be installed in complete accord with the National Electric Code. U.L. Listing FHJU.E479554.

N. REVIEWS AND APPROVALS

- A. Shop drawings shall be approved, and job site field measurements taken prior to installation and telescopic seating shall be installed in conformance therewith.

O. INSTALLATION

- A. The installation of the telescopic seating will be handled directly by the manufacturer or by a factory authorized installation subcontractor qualified to perform the installation function.

P. PROTECTION

- A. The manufacturer's representative shall transmit instructions in both operation and maintenance to the owner.
- B. The manufacturer's representative shall provide an annual inspection and training schedule during the first year of operation.