### SECTION 12765 - TELESCOPING PLATFORM & METRO CHAIR SYSTEM SPECIFICATIONS

## PART 1 GENERAL

**1.01 SUMMARY**

A. Section Includes: Telescoping Platform Seating includes, either manually or electrically operated systems of multiple-tiered seating rows comprising of seat, deck components, understructure that permits closing without requiring dismantling, into a nested configuration for storing or for moving purposes.

**ED NOTE: REVISE BELOW TO SUIT PROJECT**

1. Typical applications include the following:

a. Wall Attached Telescoping Platform Seats.

b. Recessed Telescoping Platform Seats.

1. Floor-Attached (Freestanding) Telescoping Platform Seats.
2. Portable Telescoping Platform Seats.

#### ED NOTE: REVISE BELOW TO SUIT PROJECT

2. Special applications include the following:

a. Tapered Section Telescopic Platforms.

b. Truncated Section Telescopic Platforms.

c. Demountable Decks

d. Spanner Decks

B. Related Sections:

1. Division 9 finishes sections for adequate floor & wall construction for operation of Telescoping Platform Seats. Flooring shall be level and rear wall plumb within 1/8” [3mm] in 8’-0” [2438mm]. Maximum Platform force on the floor, of a 20’ [6096mm] section, shall be a static point load of less than 300 psi [2.07 Mpa]

2. Division 16 Electrical sections for electrical wiring and connections for electrically operated Telescoping Platform Seats.

C. Alternates: This section specifies alternates for Telescoping Platform Seat products. Refer to Part 2 products for alternate products, and to Division 1 Alternates sections and other bid documents, if any, for alternate requirements.

**1.02 REFERENCES**

A. National Fire Protection Association 102-2011

B. ICC 300-2012

C. American Welding society (AWS):

1. AWS D1.1 Structural Welding Code - Steel

2. AWS D1.3 Structural Welding Code - Sheet Steel

D. American Institute of Steel Construction (AISC):

1. AISC - Design of Hot Rolled Steel Structural Members

E. American National Standards Institute (ANSI).

F. American Iron & Steel Institute (AISI):

1. AISI - Design Cold Formed Steel Structural Members.

G. Aluminum Association (AA):

1. AA - Aluminum Structures, Construction Manual Series.

H. American Society for Testing Materials (ASTM):

1. ASTM - Standard Specification for Properties of Materials.

I. National Forest Products Association (NFoPA):

1. NFOPA - National Design Specification for Wood Construction.

J. Southern Pine Inspection Bureau (SPIB):

1. SPIB - Standard Grading Rules for Southern Pine.

K. National Bureau of Standards/Products Standard (NBS/PS):

1. PS1 - Construction and Industrial Plywood.

L. 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 telescopic Platform seating systems to the following structural loads without exceeding allowable design working stresses of materials involved, including anchors and connections. Apply each load to produce maximum stress in each respective component of each Platform seat unit.

1. Design Loads: Comply with NFPA 102, 2011 Edition, Chapter 5 for design loads, as well as ICC 300 – 2012.

B. Manufacturer's System Design Criteria:

1. Platform seat assembly; Design to support and resist, in addition to its own weight, the following forces:

a. Live load of 120 lbs per linear foot [1751 N/m] on seats and decking

b. Uniformly distributed live load of not less than 100 lbs per sq. ft. [4788 N/m2] of gross horizontal projection.

c. Parallel sway load of 24 lbs. per linear foot [350 N/m] of row.

d. Perpendicular sway load of 10 lbs. per linear foot [146 N/m] of row.

2. Hand Railings, Posts and Supports: Engineered to withstand the following forces applied separately:

a. Concentrated load of 200 lbs. [890 N] applied at any point and in any direction.

b. Uniform load of 50 lbs. per foot [730 N/m] applied in any direction.

3. Guard Railings, Post and Supports: Engineered to withstand the following forces applied separately:

a. Concentrated load of 200 lbs. [890 N] applied at any point and in any direction along top rail.

b. Uniform load of 50 lbs. per foot [730 N/m] applied horizontally at top rail and a simultaneous uniform load of 100 lbs. per foot [1460 N/m] applied vertically downward.

4. Member Sizes and Connections: Design criteria (current edition) of the following shall be the basis for calculation of member sizes and connections:

a. AISC: Manual of Steel Construction

b. AISI: Specification for Design of Cold Formed Steel

Structural Members

c. AA: Specification for Aluminum Structures

1. NFOPA: National Design Guide for Wood Construction.

C. Chairs

1. Seats:

1. Shall be cantilevered, self-centering, automatic three-quarters lift with over center retracting feature for ease of row passage and janitorial access.
2. Seat shall be tested and professionally certified through an independent testing laboratory to support and withstand an evenly distributed 600 lb [2669 N] static load without failure or irregularities that would impair usefulness.
3. 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.
4. Seat shall be tested and professionally certified to withstand 10,000 impacts of a 40 lb [178 N] 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.
5. Backs:
6. Back shall withstand an evenly distributed front or rear static load of 450 lbs [2002 N].
7. 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.
8. Back shall withstand, without failure, an evenly distributed Horizontal Traverse Static Load of 200 lbs [890 N] The load shall be applied to the top of the back at a 45-degree angle to the row of seats.
9. Armrests shall be tested and professionally certified to withstand, without failure, a 200 lb [890 N] static load applied both perpendicular to and vertically down on the arm.
10. Materials (Flammability) shall satisfy applicable test, codes, standards, or requirements as follows:
11. Copolymer polypropylene shall have a burn rate of 1 inch [25 mm] per minute or less per ASTM 635.
12. Upholstery materials shall meet requirements as set forth in the state of California Bureau of Home Furnishings Technical Bulletin 117.
13. Fire-performance Characteristics of Seat Padding: Provide seating that complies with test method: California Technical Bulletin 117
14. 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.

***ED. NOTE: SELECT THE FOLLOWING, AS REQUIRED.*** Full Scale Fire Performance Characteristics of Finished Chair: ***(REQUIRES INCLUSION OF CAL TB133 FIRE BARRIER)*** Provide seating that complies with test method: California Technical Bulletin 133 & British Standard Crib 5.

**1.04 SUBMITTALS**

A. Section Cross-Reference: 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, if any.

C. Shop Drawings: Indicate Telescoping Platform Seat assembly layout. Show seat heights, row spacing and rise, aisle widths and locations, assembly dimensions, anchorage to supporting structure, material types and finishes.

1. Wiring Diagrams: Indicate electrical wiring and connections.

2. Graphics Layout Drawings: Indicate pattern of contrasting or matching seat colors

D. Samples: Seat materials and color finish as selected by Architect from manufacturers offered color finishes.

1. 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. Operating/Maintenance Manuals: Provide to Owner maintenance manuals. Demonstrate operating procedures, recommended maintenance and inspection program.

I. Warranty: Manufacturers standard warranty documents.

**1.05 QUALITY ASSURANCE**

**ED NOTE: BELOW STANDARD MAY BE MORE STRINGENT THAN APPLICABLE BUILDING CODE REQUIREMENTS. COORDINATE WITH IBC, SBCCI, NFPA CODE REQUIREMENTS FOR TELESCOPIC SEATS.**

A. Seating Layout: Comply with current NFPA 102 Standard for Assembly seating, Tents, and Membrane Structures, and specifically with Folding and Telescopic Seating, except where additional requirements are indicated or imposed by authorities having jurisdiction.

B. Welding Standards & Qualification: Comply with AWS D1.1 Structural Welding Code - Steel and AWS D1.3 Structural Welding Code - Sheet Steel.

C. 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:

$500,000.00 (US) Each Accident

$500,000.00 (US) Disease - Policy Limit

$500,000.00 (US) 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 $5,000,000.00 (US).

D. Manufacturer Qualifications: Manufacturer who has a minimum of twenty years of experience manufacturing telescoping Platform seats.

E. Installer Qualifications: Engage experienced Installer who has specialized in installation of telescoping Platform seat types similar to types required for this project and who is acceptable to, or certified by, telescoping Platform seat manufacturer.

F. Engineer Qualifications: Engage licensed professional engineer experienced in providing engineering services of the kind indicated that have resulted in the successful installation of telescoping Platforms similar in material, design, fabrication, and extent to those types indicated for this project.

**1.06 DELIVERY, STORAGE AND HANDLING**

A. Deliver telescopic Platforms 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 telescoping bleachers 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 telescoping Platforms. 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 Acceptance.

2. Beneficiary: Issue warranty in legal name of project Owner.

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

**1.09 MAINTENANCE AND OPERATION**

A. Instructions: Both operation and maintenance 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. Operation of the Seating System shall be supervised by responsible personnel who will assure that the operation is in accordance with the manufacturer's instructions.

2. Only attachments specifically approved by the manufacturer for the specific installation shall be attached to the seating.

3. An annual inspection and required maintenance of each seating system shall be performed to assure safe conditions. At least biannually the inspection shall be performed by a professional engineer or factory qualified service personnel.

## 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 HERE IN).**

**2.01 MANUFACTURERS**

A. Manufacturer: Hussey Seating Company, U.S.A.

1. Address: North Berwick, Maine, 03906

2. Telephone: (207) 676-2271; Fax: (207) 676-9690

**ED NOTE: ADD BELOW SELECTIONS FROM MANUFACTURER’S LITERATURE AND COORDINATE SELECTIONS WITH DRAWINGS.**

3. Product: Hussey Telescopic Platform Seat System

* 1. **MXP** Series Telescopic Platform Seats, row spacing in either 32 inches [813mm], 33 inches [838mm], 34 inches [864mm], 35 inches [889mm], or 36 inches [914mm].
  2. **MXP** Series Telescopic Platform Seats, Custom Rise 4” [102mm] min. – 24” [610mm] max. Row rise at any dimensional increments. Variable/ Combination Rise solutions also available upon request. Consult your Hussey Representative for engineering details.

d. Aisle Type: **SELECT:** foot level aisles, front steps, and intermediate aisle steps.

e. Seat Type: **SELECT:** Metro chairs, Nose Mounted Quattro chairs, or Folding Quattro chairs

1. Metro Chairs color finish: **SELECT:** manufacturers 19 standard colors.
2. Nose Mounted Quattro Chairs color finish: manufacturers XX standard colors.
3. Folding Quattro Chairs color finish: manufacturers XX standard colors.
4. **(See Personalization and Creativity under Accessories section)**

f. Rail Type: **SELECT:** Self Storing or removable end rails, front railings, rear rails, aisle hand rails

g. Operation: electrical power

1) Electrical Power System: **SELECT:** Integral power with pendant control and limit switches, or steerable power with pendant control.

1. Transport System (Portable Sections Only): (**SELECT**: integral dollies, portable dollies, fork tubes, fork tubes with integral shelf dollies)
2. Platform Type: (**SELECT**: wall attached, portable, freestanding, recessed)
3. Chair Operation: Manual or Semi Automate

**ED NOTE: SELECT CHAIR OPERATION TYPE BELOW.**

1. Manual Operation with foot-assist: Chairs shall be ganged in group(s) of two to four, manually raised and lowered with foot-assist. Armrests shall be manually flipped-down during raising of chairs.
2. Semi Automatic Operation: Rows of chairs shall be manually raised or lowered as one unit with spring-counter-balance to offset weight. Semi-Automatic operation will require depressing a foot pedal to activate the unlocking system to lower each row of spring--counter-balanced chairs. Unlocking shall be performed from an aisle.

i. Chair Dimensions

i. Seat up envelope: 14 1/2” [368mm]

ii. Seat down envelope: 21 1/2” [546mm]

iii. Seat height: 16 1/2” [419mm]

iv. Armrest height: 25 1/4” [641mm]

v. Back height: 31 3/4” [806mm]

j. Chair Construction: (*SELECT:* polymer seat, upholstered seat, fully enveloped seat, polymer back, upholstered back)

4. Product Description/Criteria:

a. Bank Length:

b. Aisle Widths:

c. Number of Tiers:

d. Row Spacing(s):

e. Row Rise:

f. Open Dimension:

g. Closed Dimension:

h. Overall Unit Height:

i. Net Capacity: ­ per seat

(18” [457mm] for CourtSide Collection 18-22” [457mm-559mm] for Metro Chairs.)

5. Miscellaneous Product Accessories: **SELECT:** operating handles, front panels, end panels, rear panels, scorer's table, top seat filler, seat numbers, row letters, end curtains, manual aisle closure, rubber gap closures, aluminum gap closures, program supports, floor pintels, aisle lights.

6. Special Applications: **SELECT:** tapered sections, truncated units, high humidity finish, cross aisles, portable access stairs, programming supports, extended rear deck filler, rear wall column cutouts.

1. Handicap Seating Provisions: Provide first tier handicap cutouts per requirements of (ADA) Americans with Disability Act located as indicated.

B. Other Acceptable Manufacturers: Will be considered if in compliance with these specifications. Deviations must be submitted with bid in order that a fair and proper evaluation be made. Those bidders not submitting a list of deviations will be presumed to have bid as specified.

**NOTE: COORDINATE BELOW ARTICLE WITH RELATED DIVISION 1 SECTION FOR ALTERNATES, AND BID DOCUMENTS AND BID FORMS FOR BID TYPE PROJECTS**

**2.02 ALTERNATES**

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:

**ED NOTE: BELOW ARTICLE FOR GENERIC / REFERENCE SPECIFICATION.**

**2.03 MATERIALS**

###### A. Lumber: ANSI/Voluntary Product 20, B & B Southern Pine

B. Plywood: ANSI/Voluntary Product PS1/07, APA Wood Species Group 1

C. Structural Steel Shapes, Plates and Bars: ASTM A36.

D. Uncoated Steel Strip (Non-Structural Components): ASTM A1011, Commercial Quality, Type B, Hot-Rolled Strip.

E. Uncoated Steel Strip (Structural Components): ASTM A1011 Grade 33, 36, 40, 45, or 50, Structural Quality, Hot-Rolled Strip.

F. Structural Tubing: ASTM A500 Grade B, cold-formed.

G. Nylon Plastic: Polyamide 66, injection molded, heat stabilized; minimum strength in accordance with ASTM D638

H. Fasteners: Vibration-proof, of size and material standard with manufacturer.

**2.04 UNDERSTRUCTURE FABRICATION**

A. Frame System:

* + - 1. Wheels: not less than four 6” [152mm] diameters by 1 3/8" [35mm] with non-marring soft rubber face to protect wood and synthetic floor surfaces or hard rubber face for concrete and other hard floor surfaces. Wheels shall have molded-in sintered iron oil impregnated bushings to fit 3/8" [10mm] diameter axles secured with E-type snap rings.
      2. Wheel Channel: High tensile steel internally stiffened between wheels.
      3. Lower Track: 3/8” [10mm] track bearing welded to wheel channel interlocked with adjacent track bearing through a ½” [13mm] diameter pre-tensioned steel guide rod. Tier catches lock each tier in the open position and allow automatic unlocking when in the closed position.
      4. Vertical Columns: High tensile steel, minimum 2” x 5” [51mm x 127mm] tubular shape, fully welded around Wheel Channel.
      5. Compression Bracing: High tensile tubular steel members through-bolted to columns and brace attachments.
      6. Secondary Bracing: High tensile tubular steel members through-bolted to front of columns and riser.
      7. Brace Attachment: High tensile steel member through-bolted to nose and riser.
      8. Deck Stabilizer: High tensile steel member through-bolted to nose and riser. Interlocks with adjacent stabilizer on upper tier using low-friction nylon guide to prevent separation and misalignment.
      9. Adjustable Cantilever: High tensile steel member through-bolted to nose and frame. Jack screw allows for vertical adjustability.

B. Deck System:

1. MXP Low Rise (4” rise to 6.624” rise)

a. Section Lengths: Each bank shall contain sections not to exceed 15’ [4572mm] in length with a minimum of two supporting frames per row and secondary bracing.

b. Riser: High tensile steel formed channel through-bolted to frames, deck stabilizers, and brace attachments.

c. Nose beam: Extruded 6063-T6 aluminum with 3 longitudinal channels for attachment of structure, chairs, rail sockets, and other accessories as required for current and future deck arrangements.

2. MXP Mid Rise (5.625” rise to 8.499” rise)

a. Section Lengths: Each bank shall contain sections not to exceed 20’ [6096mm] in length with a minimum of two supporting frames per row and secondary bracing. Sections without secondary bracing shall not to exceed 15’ [4572mm] in length.

b. Riser: High tensile steel formed channel through-bolted to frames, deck stabilizers, and brace attachments.

c. Nose beam: Extruded 6063-T6 aluminum with 3 longitudinal channels for attachment of structure, chairs, rail sockets, and other accessories as required for current and future deck arrangements.

3. MXP High Rise (8.500” rise to 24.000” rise)

a. Section Lengths: Each bank shall contain sections not to exceed 20’ [6096mm] in length with a minimum of two supporting frames per row.

b. Riser: High tensile steel formed channel through-bolted to frames, deck stabilizers, and brace attachments.

c. Nose beam: Extruded 6063-T6 aluminum with 3 longitudinal channels for attachment of structure, chairs, rail sockets, and other accessories as required for current and future deck arrangements.

***ED. NOTE: SELECT DECKING OPTION***

1. Extruded Aluminum Decking: 1.03" [26mm], 6063-T6 grade, clear anodized oriented from front of deck to rear of deck (nose beam to riser beam). Adjacent pieces shall be locked together with snap interlocking feature from front to rear of deck. Longest unsupported span: 43 7/16” [1103mm].

1. Poly Deck: Shall be a high-density polyethylene overlay panel fabricated with a skid-resistant textured top surface of 100% moisture barrier bonded to a plywood substrate with an exterior glue. Panel thickness shall be 1.03” [26mm] with top polyethylene surface colored weathered gray, black, or beige.
2. Aluma-Deck: Shall be a aluminum overlay panel fabricated with a skid-resistant textured top surface of 100% moisture barrier bonded to a plywood substrate with an exterior glue. Panel thickness shall be 1.03” [26mm] with top aluminum surface.
3. Carpeted Decks: Provide at decks and steps double tufted, anti-static, solid and crush resistant 100% polypropylene pile with high-density foam backing carpet. Mount to Classic Wood deck as substrate. Carpet color to be of manufacturer's standard selection.

**2.05 SEATING FABRICATION**

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

A. Metro Telescopic Platform Chair System

**ED NOTE: SELECT CHAIR CONSTRUCTION TYPE BELOW.**

1. Chair System: Beam-mounted design, consisting of chairs independently mounted and armrests independently mounted to transverse beam. Top of support arms shall be designed to capture and secure the beam in place. Support arms articulate from manual assist or semi-automatic operating mechanism.
2. Seat Support:
   * + - 1. Each of the independent seat hinges shall be fitted with up and down stops as well as double-acting, self-centering, preloaded coiled seat return springs with silencers.
         2. Chairs must be designed with two independent return springs which position seat pan in 3/4 fold position with 100 percent (100%) fold position available for added aisle passage. Seat action shall be dampened for a constant velocity return and no final oscillations to the rest position.
         3. Hinges, seat support, return springs, and stops shall be enveloped and concealed by the seat and back shells. 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.
3. Polymer Seats / Backs: (*SELECT:* seats, backs, or seats and backs)
   * + - 1. Shall each be textured one-piece gas-assist injection molded pigmented polypropylene shells.
         2. Shall be internal structured with peripheral gas channels. The gas channels shall support, resist, and transmit design loads to the aluminum in the plastic chair beam.
         3. Back must extend below seat to afford chair occupant protection from rear and eliminate any pinching hazard.
         4. Backs should be rigidly attached to the chair beam and show no evidence of articulation.
4. Upholstered Seats / Backs: (*SELECT:* seats, backs, or seats and backs)
   * + - 1. Each seat and back shall be textured one-piece gas-assist injection molded pigmented polypropylene shells.
         2. Upholstery shall be a complete self-retaining unit, welded to the seat and back surfaces using a hot plate welding technique.
         3. Each unitized upholstery panel shall be comprised of medium density virgin urethane foam on a precision injection molded polypropylene backer. The fabric cover shall be tensioned over and neatly enclose both foam and backer.
         4. Each seat and back shall be internal structured with peripheral gas channel frame. The frames shall support, resist, and transmit design loads to the aluminum chair beam.
         5. Seat foam cushion shall be not less than 1 1/2” [38mm] thick; back foam cushion shall not be less than 1” [25mm] thick.
         6. Seat “covers” shall be of a three-piece construction, without welts, taut, and securely retained.
         7. Tailoring shall evidence a superior level of design, workmanship and fit.
         8. Seat (bottom) closure shall be textured plastic with front and sides turned 180 degrees to regain and protect cover. Pan materials, texture, and color shall match chair back; non-matching seat pan/back construction materials and finishes are not acceptable.

***ED. NOTE: SELECT SEAT COVER OPTION.*** StandardBottom 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 cover. The shell / bottom shall compliment the overall design of the chair.

1. Armrests: Shall be of injection-molded, leather textured polypropylene secured to polypropylene armrest base with concealed fasteners. Armrest standard to be of powder-coated cast aluminum grade AA 380 and independently secured to mounting beam.
2. Chair Beam: Shall be constructed of extruded aluminum with polymer end caps and serve as the focal attachment and shall in turn transmit all forces to the beam support.
3. Beam support: Shall be cast steel support arms. Closed seam steel tube standards are unacceptable. Top of support arms shall be designed to capture and secure the beam in place. Support arms articulate from manual assist or semi-automatic operating mechanism.

**2.06 SHOP FINISHES**

1. Understructure: For rust resistance, steel understructure shall be finished on all surfaces with black "Dura-Coat” enamel. Understructure finish shall contain a silicone additive to improve scratch resistance of finish.
2. Wear Surfaces: Surface subject to normal wear by spectators shall have a finish that does not wear to show different color underneath:
3. Steel risers shall be finished with powder coated polyester, semi - gloss black.
4. Aluminum decks and noses will be clear anodized in accordance with the Aluminum Association process designated as 204Rln 0.4 mil Architectural Class 2.
5. Railings: Steel railings shall be finished with powder coated polyester, semi - gloss black.
6. Chair Components

* + - 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 [0.038 mm].
      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 one of manufacturer’s standard grade fabric offerings.
      4. Color: Shall be per manufacturer's standards. Seating Contractor shall submit color samples for owner's approval prior to manufacture.

**2.07 FASTENINGS:**

1. Welds: Performed by welders certified by AWS standards for the process employed.
2. Structural Connections: Secured by structural bolts with prevailing torque lock nuts or free-spinning nuts in combination with lock washers.

**2.08 ELECTRICAL OPERATION**

**ED NOTE: SELECT ONE STYLE POWER SYSTEM BELOW FOR EACH BANK**

A. Integral Power: Furnish and install Hussey PF4, an integral automatic electro‑mechanical powered frame propulsion system, to open and close telescopic seating. Integral Power and Control System shall be Underwriters Laboratories, Inc. (UL) approved and listed.

* 1. Operation shall be with the following options:
     1. Removable pendant control unit which plugs into seating bank for operator management of stop, start, forward, and reverse control of the power operation.
     2. Portable pendant control box which plugs into seating bank for operator management of forward, reverse, left, right, and individual motor selection.

1. Each Powered Frame unit shall consist of output shaft gear reducer with 6" [152mm] diameter x 4" [102mm] wide wheels covered with non‑marring 1/2" [13mm] thick composite rubber. Reducers shall be fitted with 3 phase induction motors which will provide an average operating speed of 26 ft/min [.13 m/s].
2. Operating Loads: Each Powered Frame provides 956 lbs pull force [4252 N].

##### ED NOTE: BELOW LIMIT SWITCHES ARE OPTIONAL ON ALLFLOOR TYPES, BUT ARE RECOMMENDED ON SYNTHETIC FLOORS

1. Limit Switches: Furnish and install both open and closed limit switches for the integral power system. The limit switches will automatically stop integral power operation when seating has reached the fully extended or closed position.
2. Power operation shall utilize a combination of contactors and limit switches to insure the wiring is not energized except during operation. Straight wired electric system is not allowed.

**ED NOTE: CONSULT HUSSEY APPLICATION ENGINEERING FOR DETERMINING BELOW POWER SUPPLY AND WIRE SIZE FOR RUN LENGTHS REQUIRED OR IF OVER TWENTY TIERS**

1. Electrical: Seating Manufacturer shall provide all wiring within seating bank including pendant control.
   1. Each unit for PF4 is power operated by a 1/2 horsepower, 1725 R.P.M., 208 Volts, 50/60 Hz., three phase 1.25 service factor motor. This motor draws a full load current of 2.2 amperes. Power supply required shall be 208 volts three phase 5 wire plus ground service with 20 amps. Motors, housing, and wiring shall be installed and grounded in complete accord with the National Electrical Code.
   2. The electrical contractor shall provide required power source with no greater than 4% voltage drop at the seating junction box. The electrical contractor shall perform all wiring connections in junction box that are attached to or a part of the building.

**2.09 TRANSPORT SYSTEMS**

**ED NOTE: SELECT BELOW SYSTEMS ONE PER APPLICATION**

1. Shelf Dollies / Lift Beams: Each platform section shall be equipped with front and rear lift beams. Lift beams shall be designed and located so as to engage the platform understructure in closed position for relocation via owner tow vehicle. The dollies will be engaged when the telescopic platform section is lifted. The dollies shall be permanently contained beneath the rear row, and shall be equipped with full swivel wheels with bonded in place polyurethane treads.
2. Portable Hydraulic Dollies: Provide one pair of portable hydraulic dollies suitable for transport of movable telescopic sections. Each dolly shall be fitted with sufficient quantity of 360 degree swiveling ball race casters to insure ease of movement. Wheel treads shall be molded polyurethane bonded to cast steel with roller bearing hubs. Dollies shall be inserted manually beneath the front of first telescoping row with seating completely closed. Dollies shall be designed to engage, at the front, each rolling carriage and at the rear, the structural steel lift beam.
3. Integral Mechanical Dollies:

**2.10 ACCESSORIES**

**ED NOTE: SELECT BELOW ACCESSORIES AS REQUIRED**

1. Front Steps: Provide at each vertical aisle location. Front steps shall engage with front row to prevent accidental separation or movement. Steps shall be fitted with non-skid rubber feet. Construction materials shall be coordinated with that of decking.
2. Non-Slip Tread: Provide at front edge of each aisle locations an adhesive-backed abrasive non-slip tread surface.
3. Strip Aisle Lights: To be (2) 6" [152mm] long x 5/16" [8mm] square strip aisle lights with housing mounted in each intermediate aisle step. Strip aisle lights will operate from 24 volts requiring a transformer system. Electrical components to be UL approved and should be installed by an electrician.
4. Intermediate Aisle Steps: Intermediate aisle steps shall be of boxed fully enclosed type construction. Construction materials shall be coordinated with that of decking. Quantity and location as indicated on plans.
5. Intermediate Aisle Handrails: Provide single pedestal mount handrails 34” [864mm] high with terminating mid rail. Handrails shall be attached to the socket and shall rotate 90° for easy storage in socket.
6. Front Panel: Provide elevated seating equipment with full width front closure panels is required. Panels shall extend vertically from underside of front row to within 1/4” [38mm] of power frame. Paneling to be 5/8” [16mm] Polydeck attached to a steel framework.
7. End Panel: Provide closure panels for stack position at each of the exposed bank ends. Panels shall be constructed of 5/8" [16mm] Polydeck suitably supported and stiffened.
8. Rear Panel: Provide required seating units with full width rear closure panels. Panels shall extend vertically full height or up to 8’-0” [2438mm] high to within 1 1/2” [38mm] of floor. Paneling to be 5/8” [16mm] Polydeck attached to a steel framework. Rear panels cannot extend above 8’-0” [2438mm] on portable sections.
9. Front Rail: Provide 36" [914mm] high demountable steel rails with tubular supports and intermediate members to fulfill design criteria. Rails to be located at all required seating locations. Finish shall be powder coat in semi gloss black.
10. Self Storing End Rails: Provide steel self-storing 42" [1066mm] high end rail with tubular supports and intermediate members designed with 4" [102mm] sphere passage requirements. Rails to be located at all required seating locations. Finish shall be powder coat in semi-gloss black.
11. Removable End Rails: Provide steel 42" [1066mm] high removable rear rails with tubular supports and intermediate members designed with 4" [102mm] sphere passage requirements. Rails to be located at all required seating locations. Finish shall be powder coat in semi-gloss black.
12. Rear Filler: Provide and install, between top row and wall, a properly supported, flush mounted, scribe fitted filler.
13. Storage Carts: Heavy duty mobile handling carts for storage and transportation of all demountable rails and related accessories. Storage trucks to be minimum 3’-9” [1143mm] wide and 6’-6” [1981mm] long with adjustable support brackets as required to store rails single high and from two sides of truck. Fit trucks with a sufficient quantity of 360 degree swivel wheels to insure ease of manual movement and stability of truck. Wheel treads to be molded polyurethane bonded to metal hub. Coordinate number of trucks required with event configurations indicated.

**ED NOTE: BELOW ACCESSORIES REQUIRE SPECIAL CONSIDERATION - CONSULT HUSSEY APPLICATION ENGINEERING**

1. Programming Support/Front Rail: Provide a combination programming support and front rail as required to support the programmed seating row with the remaining lower rows stored beneath. Front rail to extend 26" [660mm] above the level of the first seating row deck and have intermediate members to fulfill applicable code and design criteria. Support/rail to be designed to sustain the live load of the first seating row being programmed.
2. Full Section Permanent Truncation: Provide Full Section Permanent Truncation as indicated. Provide rigid 26" [660mm] high above truncated deck front rails with tubular supports attached to the front of the permanent truncation. Provide full height front closure panel from underside of truncated row to within 1/4” [6mm] of power frame.
3. Full Section Recoverable Truncation: Provide a combination programming support and front rail as required to support full section recoverable truncation with remaining lower rows stored beneath. Support/front rail to extend 26" [660mm] above deck and be designed to sustain live load of first seating row being programmed.
4. Transitional Top Steps: Provide at each vertical aisle location top transition steps (last row of telescopic platforms to balcony). Steps shall be of boxed fully enclosed type with construction materials and finish coordinated with that of decking.
5. Rubber Gap Closures: Operating clearance gaps between sections shall be covered with removable thresholds. The thresholds shall be extruded rubber, retained by an oversize self-centering spine.
6. Cross Aisle: Provide continuous top cross aisle per plan of seating. Construction material and finish to match telescopic seating.
7. Portable Section Locks: Each portable telescopic section shall be equipped with interconnecting section locks. Locks shall be designed to connect both the upper and lower area of the rear deck structure to ensure proper operating clearance and section alignment.
8. Spanner Decks: Provide required removable decks designed to span area between adjacent seating banks. Spanner decks shall match construction and finish of telescopic platforms.
9. Demountable Decks: Provide and install demountable decks of size and dimension convenient for handling and storage. Demountable decks to be located in front of the telescopic seating and to assure aisle locations contiguous to the telescopic sections. Each deck shall be fitted with non-skid rubber feet. Construction materials and finish to match that of telescopic platform.
10. End Curtains: Furnish, deliver and install closure curtain panels at each exposed deck end in accordance with the drawings. **(See Personalization and Creativity under Accessories section)**

**ED NOTE: BELOW ACCESSORIES ARE FOR METRO CHAIR**

1. Armrests, Injection Molded Plastic: Armrests shall be of injection molded, leather textured polypropylene. Armrest to be secured to standard with concealed fasteners.
2. 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 water based stain; followed by a sealer coat, scuff sanding, and water based clear topcoat. Stain shall be selected from manufacturer’s standard offerings. Armrest to be secured to standard with concealed fasteners.
3. 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 water based paint with scuff sanding between coats, followed by a water based clear topcoat. Paint shall be selected from manufacturer’s standard offerings. Armrest to be secured to standard with concealed fasteners.
4. 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.

1. Armrest, Plastic Cup Holder: Armrest shall be of injection molded, leather textured glass filled nylon base with polypropylene armrest cap.
2. Armrest, Upholstered Plastic Cup Holder: Armrest shall be of injection molded, leather textured glass filled nylon base with an upholstered insert to match other chairs in venue.
3. Armrest, Hardwood Plastic Cup Holder: Armrest shall be of injection molded, leather textured glass filled nylon base with a solid hardwood insert to match other chairs in venue.
4. Armrest, ADA Easy Access: Armrest shall hinge on end standards to allow equal 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.
5. Chair Numbers: Black text with gray background on a 23/32” x 2 7/32” [18.5mm x 56.5mm] elliptical polycarbonate plate. Plate fitted in a vandal resistant recess located in rear of armrest and secured with adhesive.
6. 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 seat pan and secured with adhesive.
7. Row Letters: Black text with gray background on a 23/32” x 2 7/32” [18.5mm x 56.5mm] elliptical polycarbonate plate. Plate fitted in a vandal resistant recess located in rear of armrest and secured with adhesive.
8. 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 with adhesive.
9. Donor Plate: 7/8” x 3” [22mm x 76mm] oval shaped Brass plate. Plate fitted in a vandal resistant recess located in the front of armrest and secured with adhesive.
10. ECOGLO Donor Plate: 7/8” x 3” [22mm x 76mm] oval shaped Aluminum plate with pale green photo luminous coating. Plate fitted in a vandal resistant recess located in the front of armrest and secured with adhesive.
11. Graphic Logo: Logo to be 1 3/4” [44mm] circle and manufactured of 0.5mm thick vinyl. Logo secured to the beam end cap with self-adhesive backing. **(See Personalization and Creativity under Accessories section)**
12. CAL TB133 & British Standard Crib 5 Fire Barrier: Fire barrier is included, under upholstery fabric, for conformance to California Technical Bulletin 133 & British Standard Crib 5.
13. T2 Folding Laptop Tablet Arm: Tablet Arm to be 20” x 15” [508mm x 380mm] square with rounded corners. Top and bottom surfaces to be high pressure laminate over solid core plywood. Tablet arm to fold down with seat row and store within users’ chair beneath the seat.

**Personalization and Creativity--Accessory Options and Solutions**

### TRITON CENTRAL HIGH SCHOOL gymnasium bleachers 005Full Bleed Graphic Vinyl End Closure Curtains

1. Provide closure curtains fabricated of vinyl-coated 14oz Polyester fabric on open ends of telescopic seating. Curtains to be permanently attached to wall or rear closure panel and secured to individual rows of seating. Curtain to open with seating unit into taught secure configuration and fold automatically as seating unit closes.
2. Curtain to have high resolution “full bleed” graphic logo or photograph located across entire visible surface area of the end curtain

Custom Signature Logo

1. Factory or Dealer designed logo that incorporates school letters or graphical representation of school logo across the front of the bleachers.
2. Logo is visible when the bleachers are in the stored position.
3. Select up to three colors for maximum color contrast and creativity.



Colored Safety Rail Systems

1. Choose from 15 Standard colors
2. Durable powder coated finish.
3. Add color on to Center Aisle Handrails, Self Storing or Removable End Rails, Front Rails, or

**Metro Beam Logo**

1. Decorative graphic logo to be located in a raised rim recess at end of extruded aluminum beam.
2. Logo to match Courtside graphic logo in end caps of Courtside seats.
3. Color logo is laminated with a 5-mil Hard Guard Matte laminate (Specs. Available)
4. Laminated logo is bonded to a Flex-Con L – 606 laminating adhesive layer (Specs. Available)

**PART 3 - EXECUTION**

**3.01 EXAMINATION**

A. Verification of Conditions: Verify area to receive telescoping Platform seats are free of impediments interfering with installation and condition of installation substrates are acceptable to receive telescoping Platform seats in accordance with telescoping Platform seats manufacturer's recommendations. Do not commence installation until conditions are satisfactory.

**3.02 INSTALLATION**

A. Manufacturer's Recommendations: Comply with telescoping Platform seats manufacturer's recommendations for product installation requirements.

B. General: Install telescoping Platform seats in accordance with manufacturer's installation instructions and final shop drawings. Provide accessories, anchors, fasteners, inserts and other items for installation of telescoping Platform seats and for permanent attachment to adjoining construction.

**3.03 ADJUSTMENT AND CLEANING**

A. Adjustment: After installation completion, test and adjust each telescoping Platform seats assembly to operate in compliance with manufacturer's operations manual.

B. Cleaning: Clean installed telescoping Platform seats on both exposed and semi-exposed surfaces. Touch-up finishes to restore damage or soiled surfaces.

**3.04 PROTECTION**

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

END OF SECTION