

SECTION 12661

PLASTIC SEAT TELESCOPING STANDS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This section includes a telescoping, electrically operated system of multiple-tiered seating rows comprised of plastic bench seats, deck components, and understructure that permits closing without requiring dismantling, into a nested configuration for storing purposes.
 - 1. Mounting method shall be wall attachment.
- B. Related Sections include the following:
 - 1. Division 9 sections for floor and wall construction for operation of telescoping stands.
 - 2. Division 16 Electrical sections for electrical wiring and connections for electrically operated telescoping stands.

1.03 SYSTEM DESCRIPTION

- A. Structural Performance: Engineer, fabricate and install telescoping stands 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 seat unit.
 - 1. Design Loads: Comply with NFPA 102, 1992 Edition, Chapter 5 and BOCA, 1999 Edition.
- B. Manufacturer's System Design Criteria:
 - 1. Telescoping Stand Assembly: Shall be designed to support and resist, in addition to own weight, the following forces:
 - a. Live Load: 120 lbs. per linear foot on seats and decking.
 - b. Uniformly Distributed Live Load: Not less than 100 lbs./sq. ft. of gross horizontal projection.
 - c. Parallel Sway Load: 24 lbs. per linear foot of row.
 - d. Perpendicular Sway Load: 10 lbs. per linear foot of row.
 - 2. Hand Railings, Posts and Supports: Shall be engineered to withstand the following forces applied separately:
 - a. Concentrated Load: 200 lbs. applied at any point and in any direction.
 - b. Uniform Load: 50 lbs./ft. applied in any direction.
 - 3. Guard Railings, Posts and Supports: Shall be engineered to withstand the following forces applied separately:
 - a. Concentrated Load: 200 lbs. applied at any point and in any direction along top rail.
 - b. Uniform Load: 50 lbs./ft. applied horizontally at top rail and a simultaneous uniform load of 100 lbs./ft. applied vertically downward.
 - 4. Maximum Bleacher Force on the Floor: Shall be a static point load of less than 300 psi for a 25'-6" section.
 - 5. 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 Steel Construction.
 - b. AISI: Specification for Design of Cold Formed Steel Structural Members.
 - c. AA: Specification for Aluminum Structures.
 - d. NFOPA: National Design Guide for Wood Construction.

- C. Seating Layout: Comply with current edition of NFPA 102, Grandstands, Folding and Telescopic Seating, Tents, and Membrane Structures, except where additional requirements are indicated or imposed by authorities having jurisdiction.

1.04 SUBMITTALS

- A. General: Submit in accordance with Section 01300.
- B. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for telescoping stands.
- C. Shop Drawings: Include plans, elevations, sections, details, seat heights, row spacing and rise, aisle widths and locations, anchorage to supporting structure, and attachments to other work.
 - 1. Graphics Layout: Indicate pattern of contrasting or matching seat colors used to produce designated graphic.
 - 2. Wiring Diagrams: Indicate electrical wiring and connections.
- D. Samples: For each type of exposed finish required, prepared on Samples of the size indicated below.
 - 1. Decking: ~~3-inch~~ (75-mm-) square samples of finished material.
 - 2. Metal Components: ~~3-inch~~ (75-mm-) square sample of each color and finish indicated.
 - 3. Seating: ~~3-inch~~ (75-mm-) square sample of each seating color and finish indicated.
- E. Welding certificates.
- F. Manufacturer Certificates: Signed by manufacturers certifying that they comply with requirements.
- G. Qualification Data: For Manufacturer, Installer and professional engineer.
- H. Operation and Maintenance Data: For telescoping stands to include in emergency, operation, and maintenance manuals.
- I. Warranty: Special warranty specified in this Section.

1.05 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.
- B. Manufacturer Qualifications: Copy of a telescopic load test observed by a qualified independent testing laboratory, and certified by a registered professional structural engineer verifying the integrity of manufacturer's geometry design and base structural assumptions.
- C. Manufacturer's Engineering Responsibility: Preparation of data for telescoping stands, including Shop Drawings, and comprehensive engineering analysis by a qualified professional engineer registered in state of manufacturer. Engineer shall certify that the equipment to be supplied meets or exceeds design criteria of this specification and codes indicated.
- D. Welding: Qualify procedures and personnel according to AWS D1.1 "Structural Welding Code - Steel" and AWS D1.3 "Structural Welding Code - Sheet Steel."
- E. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- F. Accessibility Requirements: Provide telescoping stands that comply with requirements in the U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA), Accessibility Guidelines for Buildings and Facilities (ADAAG)".

1.06 DELIVERY, STORAGE, AND HANDLING

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

1.07 PROJECT CONDITIONS

- A. Field Measurements: Verify actual locations of walls, columns, and other construction that will interface with telescoping stands by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate field measurements and fabrication schedule with construction progress to avoid delay of Work.

1.08 WARRANTY

- A. General: Special warranty specified in this Section shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by Contractor under requirements of the Contract Documents.
- B. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of telescoping stands that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.01 MANUFACTURER

- A. Manufacturer: Hussey Seating Company, USA
 - 1. Address: North Berwick, Maine 03906
 - 2. Telephone: (207) 676-2271. Fax: (207) 676-9690.

2.02 MATERIALS

- A. Plywood: ANSI/Voluntary Product PS1, APA A-C Exterior Grade.
- B. Structural Steel Shapes, Plates and Bars: ASTM A 36.
- C. Uncoated Steel Strip (Non-Structural Components): ASTM A569, Commercial Quality, Hot-Rolled Strip.
- D. Uncoated Steel Strip (Structural Components): ASTM A570 Grade 33, 40, 45, or 50, Structural Quality, Hot-Rolled Strip.
- E. Uncoated Steel Strip (Structural Components): ASTM A607 Grade 45 or 50, High-Strength, Low Alloy, Hot-Rolled Strip.
- F. Galvanized Steel Strip: ASTM A653 Grade 40, zinc coated by the hot-dip process, structural quality.
- G. Structural Tubing: ASTM A500 Grade B, cold-formed.
- H. Polyethylene Plastic: ASTM D 1248, Type III, Class B; molded, color-pigmented, textured, impact-resistant, structural formulation; in color indicated or, if not otherwise indicated, as selected by Architect from manufacturer's full range of colors, including select colors.

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

2.03 TELESCOPING STANDS

- A. Description: Operable systems of multiple -tiered seating on interconnected folding platforms that close, without being dismantled, into a nested stack for storing or moving. Stand units permit opening and closing of adjacent rows, allow individual and collective rows to be locked open for use, and close with vertical faces of upper skirts on the same vertical plane.
- B. Product: Hussey Telescopic Gym Seat System.
 - 1. Model: MXM26 Series Telescopic Gym Seats, adjustable row spacing in 2-inch increments from 22 inches to 26 inches. System shall provide first row to recess along entire length of telescoping stands for ADA flexibility and recessed floor sitting.
 - 2. Aisle Type: Front steps, intermediate aisle steps.
 - 3. Bench Seat Type: MVP (molded polyethylene plastic with contour seat surface).
 - 4. Rail Type: Self-storing end rails and aisle handrails.
 - 5. Operation: Electrical.
 - a. Electrical Power System: Integral power with pendant control, motion monitor and limit switches.
 - 6. Miscellaneous Product Accessories: Operating handles, front panels, end panels, top seat filler, row letters, seat numbers, and end curtains.
 - 7. Special Graphics: Provide contrasting or matching seat top or seat base colors to create graphic pattern as indicated.

2.04 UNDERSTRUCTURE FABRICATION

- A. Wall-Attached Telescoping Stands: Rear of understructure permanently attaches to wall construction.
- B. Frame System:
 - 1. Support Column Wheels: Not less than 5-inch diameter by 1-1/4 inch wide with non-marring, soft, rubber face to protect wood and synthetic floor surfaces, with molded-in sintered iron oil impregnated bushings to fit 3/8-inch diameter axles secured with E-type snap rings.
 - 2. Lower Track: Continuous Positive Interglide (CPI) System interlocks each adjacent CPI unit using an integral, continuous, anti-drift feature and through-bolted guide at front to prevent separation and misalignment. Each CPI unit shall contain a Low Profile Posi-Lock LX to lock each row in open position and allow unlocking automatically. Provide adjustable stops to allow field adjustment of row spacings.
 - 3. Slant Columns: High tensile steel, tubular shape.
 - 4. Sway Bracing: High tensile steel members through-bolted to columns.
 - 5. Upper Guide: High tensile steel through-bolted to nose and riser. Interlocks with adjacent upper tier to prevent separation and misalignment. Provide adjustable stops to allow field adjustment of row spacings.
 - 6. Deck Support: Securely captures decking for entire length of section.
- C. Deck System:
 - 1. Section Lengths: Each bank shall contain sections not exceeding 25'-6" in length with a minimum of two supporting frames per row, each section.
 - 2. Nosing and Rear Riser: Continuous roll formed galvanized steel members.
 - 3. Attachment: Through-bolted fore/aft to deck guides, and frame cantilevers.
 - 4. Decking: 5/8 inch thick, AC grade, tongue and groove, transversely oriented plywood, interior type with exterior glue, 5-ply, all plies Southern Pine with plugged crossbands, produced in accordance with National Bureau of Standards PS-1-83. Longest unsupported span: MXM 26, 21-1/2 inches.
 - 5. Deck End Overhang: Not to exceed frame support by more than 5'-7".

2.05 SEATING FABRICATION

- A. MVP Seat System:
1. Seat Modules: Anatomically contoured, bench seat surface, 10 inches wide by 18 inches long, unitized, interlocking, engineered, high density polyethylene modules providing scuff-resistant, textured finish. Minimum 1/2-inch interlock on seat and face.
 2. Profile: Designed with internal reinforcement ribs and cantilevered to the rear to provide not less than 3 inch smooth toe space beneath seat. Toe space shall be fully enclosed, providing smooth continuous back.
 3. Seat Support: Each seat support module shall be secured against fore and aft movement by not less than two longitudinally sited steel fasteners spaced no less than 2-1/4 inches on center, creating a steel to steel connection, tying the structure firmly to the steel nosing.
 4. End Caps: Ends of each row shall be enclosed with matching end caps matching material and color of bench seat. End caps shall have the following characteristics:
 - a. Shall be designed with concealed attachment.
 - b. Shall have full radius on all edges.
 - c. Shall provide indent for row letters.
 5. Number Plates: Seat module shall be designed to accept seat number plates.
- B. Wheelchair-Accessible Seating: First row shall be comprised of retractable, truncated modular bench units to provide wheelchair-accessible and able-bodied seating options. Each Flex-Row unit shall have an unlock lever for easy deployment if wheelchair access is needed. Unlock lever shall lock bleacher seats into position when fully opened. Provide each unit with the following:
1. Full surround, black skirting, 1/2-inch off floor, for safety and improved aesthetics.
 2. Black injection molded end cap on nose beam for safety and improved aesthetics.
 3. Mechanical, positive lock when Flex-Row system is in open and used position.
- C. Bench Seat Color: Selected by Architect from manufacturer's standard and select colors; provide two colors.
- D. Bench Riser Color: Selected by Architect from manufacturer's colors.
- E. Graphics Color: Selected by Architect from manufacturer's standard and select colors.

2.06 FASTENINGS

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

2.07 ELECTRICAL OPERATION

- A. Integral Power: Provide Hussey PF (1/2/3/4), an integral automatic electro-mechanical 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 a removable pendant control unit that plugs into seating bank for operator management of stop, start, forward, and reverse control of the power operation.
 2. Operating Speed: Each Powered Frame unit shall consist of output shaft gear reducer with 6-inch diameter x 4-inch wide wheels covered with non-marring 1/2-inch thick composite rubber. Reducers shall be fitted with induction motors that provide an average operating speed of 25 fpm.
 3. Operating Loads: Each Powered Frame provides 550 lbs pull force which equals approximately 35 lbs psi lateral force on the floor.
 4. Limit Switches: Both open and closed limit switches for the integral power system. Limit switches shall automatically stop integral power operation when seating has reached the fully extended or closed position.
 - a. 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 shall not be allowed.

5. Motion Monitor: Flashing light with self-contained warning horn, rated at 85 decibels (dB) at 10 feet (3 m), mounted under telescopic seating for audio and visual warning during integral power operation.
6. Electrical: Seating manufacturer shall provide all wiring within seating bank including pendant control. Verify and coordinate power with General Contractor.
 - a. Each unit power shall be operated by a 1/2 horsepower, 1725 R.P.M., 208 Volts, 50/60 Hz., three phase 1.25 service factor motor. Motor draws full load current of 2.2 amperes. Power supply required shall be 120/208 volts three phase 4 wire plus ground service with 20 amps. Motors, housing, and wiring shall be installed and grounded in complete accordance with the National Electric Code.
 - b. The electrical contractor shall provide required power source with not more than a 4% voltage drop at the seatings junction box. The electrical contractor shall perform all wiring connections in junction box that are attached to or a part of the building.

2.08 ACCESSORIES

- A. Front Aisle Steps: At each vertical aisle location, provide front aisle step that engages with front row to prevent accidental separation or movement and is fitted with four non-skid rubber feet, 1/2-inch in diameter, and blow molded end caps with full radius on all four edges.
- B. Non-Slip Tread: Provide adhesive-backed, abrasive, non-slip tread surface at front edge of each tread in aisle locations.
- C. Intermediate Aisle Steps: Shall be fully enclosed, box type construction with blow molded end caps having full radius on all edges. Steps shall have non-skid surface.
- D. Intermediate Aisle Handrails: At centerline of each vertical aisle with seating on both sides, provide single pedestal mount handrails, 34 inches high, with terminating mid rail. Handrails shall attach to socket and shall rotate 90 degrees in socket for storage when telescopic stand is in closed position. Aisle handrails that are detached from the socket for storage are unacceptable.
- E. Self-Storing End Rails: Steel, self-storing end rails, 42 inches above seat, with tubular supports and intermediate members designed to prevent passage of 4-inch sphere.
- F. Top Seat Flush Filler: Flush, filler board and supports for mounting between top seat and rear wall; constructed of Southern Pine, Grade B & B, 1-inch nominal thickness, with clear urethane finish.
- G. End Enclosure: Heavy-duty, 18 oz., vinyl coated polyester fabric to cover exposed ends of understructure; automatically telescopes with stands; color as selected by Architect from manufacturer's full range of options.
- H. Row Letters: Oval, etched Lexan plate, 1-3/4 inch x 1-1/4 inch, with black numerals; vandal-resistant mounting. Locate at end of each row in recess of bench seat end cap.
- I. Seat Numbers: Oval, etched Lexan plate, 1-3/4 inch x 1-1/4 inch, with black numerals; flush mounted in vandal resistant recess of each plastic seat module.

2.09 SHOP FINISHES

- A. General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. 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.

- C. Wear Surfaces: Surfaces subject to normal wear by spectators shall have a finish that does not wear to show different color underneath:
 - 1. Steel nosing and rear risers shall be pre-galvanized with a minimum spangle of G-60 zinc plating.
 - 2. Plywood deck surfaces shall receive a sealer coat and a high gloss clear urethane finish. Horizontal use surfaces shall receive a textured high gloss clear urethane finish that does not show different color underneath.
- D. Railings: Manufacturer's standard powder coat system, semi-gloss black.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine areas where telescoping stands are to be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Install telescoping stands to comply with referenced safety standard and manufacturer's written instructions.

3.03 ADJUSTING AND CLEANING

- A. On completion of installation, lubricate, test, and adjust each telescoping stand unit so that it operates according to manufacturer's written operating instructions.
- B. Clean installed telescoping stands on exposed and semiexposed surfaces. Touch up shop-applied finishes or replace components as required to restore damaged or soiled areas.

3.04 PROTECTION

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

3.05 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain plastic seat telescoping stands. Refer to Division 1 Section "Contract Closeout."

END OF SECTION