

The Kodiak 2400 Seating System by Royal Stewart Ltd.

PART 1 GENERAL

1.01 SUMMARY

- A. Bleacher System shall be the 2400 series as manufactured by Royal Stewart Ltd., Winnipeg, Manitoba, in accordance with applicable codes, the following specifications, and approved drawings.
- B. Related Sections
 - 1. Division 16 Electrical sections for electrical wiring and connections for electrically operated telescoping Gym Seats.

1.02 REFERENCES

- A. National Fire Protection Association (NFPA)
 - 1. NFPA 102 Standard for Assembly Seating, Tents and Membrane Structures.
- B. American Welding society (AWS):
 - 1. AWS D1.1 Structural Welding Code - Steel.
 - 2. AWS D1.3 Structural Welding Code - Sheet Steel.
- C. 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 gym seat to the following structural loads without exceeding allowable design working stresses of materials involved, including anchors and connection. Apply each load to produce maximum stress in each respective component of each gym seat unit.
 - 1. Design Loads: Comply with NFPA 102, 1992 Edition, Chapter 5 for design loads.
- B. Design Criteria:
 - 1. Bleachers shall be designed at minimum to withstand the following loads and forces in addition to their own weight:
 - a) Seat and footboards shall be designed to withstand a vertical live load of 120 lbs. per lineal foot (178 kg /m)
 - b) Platforms shall be designed to withstand a vertical live load of 100 lbs. per square foot (488 kg/ sq.m)
 - c) Each row shall withstand a horizontal side sway force of 24 lbs. per lineal foot (37.5 kg / meter)
 - d) End and back rails shall withstand an outward force of 50 lbs. per lineal foot at the top rail (74.4 kg / m)

1.04 SUBMITTALS

- A. Shop Drawings: Indicate Telescoping Gym 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 colours.
- B. Samples: Seat materials and colour finish as selected by Architect from manufacturers standard colour finishes.
- C. Warranty: Manufacturers standard warranty documents.

1.05 QUALITY ASSURANCE

- A. NFPA Standard: Comply with current NFPA 102 Standard for Assembly seating, Tents, and Membrane Structures, and specifically with Chapter 5 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. Installer Qualifications: Engage experienced Installer who has specialized in installation of telescoping gym types similar to types required for this project and who is acceptable to, or certified by, telescoping gym seat manufacturer.

1.06 WARRANTY

- A. Standard manufacturer's five (5) year limited warranty: The manufacturer-supplied materials will be warranted against faulty materials and workmanship for a period of five (5) years. This guarantee excludes any parts determined to have been subject to accident, abuse, misuse or neglect. Contact Royal Stewart Ltd. for complete warranty documentation.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturer: Royal Stewart Ltd.
 - 1. 1865 Burrows Ave. Winnipeg, MB, Canada
 - 2. Telephone: (204) 224-3221;
 - 3. Website: <http://www.royalstewart.com>

2.02 SUPPLY AND INSTALL

A. Seating Area:

Bank A - ___ Long x ___ Rows High

Bank B - ___ Long x ___ Rows High

Mounting: Wall Attached / Floor Attached / Portable / Recessed / Reverse Fold (For all other configurations, contact Royal Stewart Ltd.)

Operation: Manual / Motorized

B. Dimensions:

1. Rise per row: 9-5/8"(245 mm) / 10 1/4" (260 mm) 11-5/8"(295 mm) / custom available)
2. Row spacing: 22"(559 mm) / 24"(610 mm) / 26"(660 mm) / custom available)
3. Closed dimension: _____
4. Extended dimension: _____

C. Accessories: (number accordingly)

- ___ Aisles shall be footrest level _____wide, or as per code. Aisles at the footrest level shall have non-slip treads on the top front edge.
- ___ End rails - Self-storing, removable "insta-rails" shall be provided at the open ends of the group. All end rails must be designed to integrate with the decking and under structure. Rails shall meet all national codes. All rails shall be made from 1"(25 mm) OD cold rolled 14 gauge round.
- ___ Non-removable folding aisle handrails shall be provided. Aisle railings shall be permanently attached to the mounting pocket and allow railings to pivot and fold sideways and down for storage. Aisle railing shall be an individual rail design, located on every other row starting at row two (2). Railings to be constructed of 1.5"(38 mm) round stainless steel tubing. Aisle rails that require removal are not acceptable.
- ___ Provided One (1) Scorer's Table
- ___ ADA truncations required as recommended by manufacturer and as per ADA
- ___ Back Rails (for reverse fold or portable) removable
- ___ Front Rails (if required)
- ___ End Panels - to the 96"(2438 mm) level
- ___ Back Panels (for reverse fold or portable)
- ___ Rear Filler Board (at seat height)
- ___ Backup motion monitor

2.03 UNDERSTRUCTURE FABRICATION

- A. All bleacher wheels shall be a minimum 4"(102 mm) in diameter with 1 ¼"(32 mm) soft, non-marring face for floor protection.
- B. Each row shall be outfitted with a minimum of eight (8) of the above wheels.
- C. Bleacher uprights shall be made of square and rectangular tubing. All bleacher leg tubing to be minimum 1.5"(38 mm) x 3"(76 mm) rectangular hollow structural tube (MINIMUM 125 wall). Tubing will be manufactured to B.W.G. specifications using S.A. E. 1010 steel. Structural "C" formed steel is not acceptable.
- D. All wheel channels to be 11-gauge steel.
- E. All bleacher slide arms to be 10-gauge steel.
- F. All bracing to be angle iron. Flat bar or formed steel bracing is not acceptable.
- G. Travel distance of each row shall be determined by the steel horizontal members under each row (or deck) and also by the mechanical trip-locks at the bottom of each upright. All row-locks must be a minimum ¼"(6 mm) steel.
- H. Platform decks shall be manufactured using 5/8"(16 mm) grey Panelam decking.
- I. Deck shall be supported over full length by rear and front channel. In addition, front and back supports will be supplied as required. Rear and front channels shall be 14-gauge galvanized steel.
- J. Sections exceeding 240" (6096 mm) in length will have an additional rear stiffener channel (minimum 14 gauge) to bridge the extended span.
- K. Deck level rear filler up to 6 ½" (165 mm) included
- L. All hardware shall be plated and stress rated.

2.04 BLEACHER FINISH

- A. All steel framing shall be finished Flat Black.
- B. Rear and front channels shall be 14 gauge galvanized.
- C. **10" (254 mm) CSM seats** to be HDPE (High-Density Polyethylene), 10"(254 mm) deep x 18"(457 mm) long in choice of manufacturer's 14 standard solid colours (Note: custom colours available). Each module shall interlock to the adjacent module both around the perimeter and along the internal ribs to eliminate pinching hazards and assure proper alignment. A minimum 1"(25 mm) full 360 degree interlock is required. Multi-part seats or seats with no interlock are not acceptable. A steel-to-steel attachment of each module to a galvanized steel nose-beam shall be provided for maximum rigidity. All seat module brackets must be double through-bolted into the deck structure. Must meet ASTM D2843, ASTM D635 and ASTM D1929.
- C. **12" (305 mm) CSM seats** to be HDPE (High-Density Polyethylene), 12"(305 mm) deep x 18"(457 mm) long (specify) in choice of manufacturer's 14 standard solid colours (Note: custom colours available). Each module shall interlock to the adjacent module both around the perimeter and along the internal ribs to eliminate pinching hazards and assure proper alignment. A minimum 1"(25 mm) full 360 degree interlock is required. Multi-part seats or seats with no interlock are not acceptable. A steel-to-steel attachment of each module to a galvanized steel nose-beam shall be provided for maximum rigidity. All seat module brackets must be double through-bolted into the deck structure. Must meet ASTM D2843, ASTM D635 and ASTM D1929.
- C. **Wood seats 4/4" (25 mm):** All wood seat and riser boards shall be 4/4"(25 mm) nominal Southern Yellow Pine. Boards shall be double sanded and receive two (2) coats of clear lacquer.
- C. **Wood seats 5/4" (32 mm):** All wood seat and riser boards shall be 5/4"(32 mm) nominal Southern Yellow Pine. Boards shall be double sanded and receive two (2) coats of clear lacquer.

2.05 ELECTRICAL OPERATION

- A. "Smart-Drive" / "Posi-drive" Propulsion System:
1. The entire system shall open and close by the "Smart-Drive" system. All Motors to be 1/2 HP instant reversing automatic reset 120 / 208 / 240 VAC. All tractor frames to be made from 7-gauge steel. All axle shafts to be 1" steel. All wheels to be vulcanized rubber. All drive chains and sprockets to be #50. All speed reducers to be Helical Drive. All wheels in the system must be mounted "free floating" to the first row of the bleacher with Heavy-duty springs and grade 5 hardened steel through-bolts (for up to 15 rows). Systems 15 rows plus shall use Posi-Drive HD system with 2 only 1"(25 mm) steel motor mount rods with steel bar weight harnesses set over the tractors according to duty. Number of tractors and added weight to be determined by requirements based on number of rows and type of seating.
 2. Manufacturer shall provide all wiring from power source within the bleacher systems including pendant control. Power requirement to be determined by seating manufacturer depending on the number of power units required. Power source to terminate in surface mounted junction box above the floor. Electrical contractor shall perform all connections to the seating equipment at the junction box.

PART 3 - EXECUTION

3.01 EXAMINATION

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

3.02 INSTALLATION

- A. Manufacturer's Recommendations: Comply with telescoping gym seats manufacturer's recommendations for product installation requirements.
- B. General: Install telescoping gym seats in accordance with manufacturer's installation instructions and final shop drawings. Provide accessories, anchors, fasteners, inserts and other items for installation of telescoping gym seats and for permanent attachment to adjoining construction.

3.03 ADJUSTMENT AND CLEANING

- A. Adjustment: After installation completion, lubricate, test and adjust each telescoping gym seats assembly to operate in compliance with manufacturer's operations manual.
- B. Cleaning: Clean installed telescoping gym seats on both exposed and semi-exposed surfaces. Touch-up finishes to restore damage or soiled surfaces.