SECTION 12760

GYMNASIUM BLEACHERS

1. **Part I** General

1.1 **Work:**

A. Telescoping gymnasium bleachers.

1.2 **Related Work:**

A. Electrical

B. Gymnasium flooring

1.3 **References:**

Applicable building codes ________ Edition Year ________

1.4 **Description of the System**

A. The bleacher system shall be comprised of multiple tiered, closed deck seating rows operating in a telescopic manner, incorporating the most economical quantity of sections while still complying with all loading requirements.

B. The first moving row shall be secured with friction or mechanical locks. Other rows shall be mechanically locked, operable only upon unlocking and cycling the first row, quantity to be determined by Interkal engineering.

C. Each bleacher row shall be comprised of risers, seat and deck components, and a complete set of supportive columns and braces.

D. The telescopic bleacher shall incorporate a locking system permitting the use of one, several, or all rows, each locked in the extended position.

1.5 **Quality Assurance**

A. **Qualifications**

1. Manufacturing: Manufacturer shall be regularly engaged in the design and manufacturing of telescopic seating for not less than twenty years.
2. Engineering: It will be mandatory that each bidder submit with their bid an affidavit signed by a Registered Professional Engineer stating that the product to be supplied has been tested by an independent testing facility and meets all applicable code requirements.

B. **Deviations:** It will be the responsibility of the bidder to furnish with their bid, a list clarifying any deviations from the specifications, written or implied. Those bidders not submitting a list of deviations will be presumed to have bid as specified.

C. **Guarantees:**
   1. One-Year Guarantee: The manufacturer shall guarantee all work performed under these specifications to be free from defects for a period of one year.

D. **Product Improvements:** Seating provided shall incorporate manufacturer’s design improvements and materials current at time of shipment.

1.6 **Submittals:**

A. Submit manufacturer’s installation instructions and descriptive literature in accordance with Section 01300.

B. Manufacturer's operating and maintenance manuals in accordance with Section 01700.

1.7 **Design Criteria**

A. Telescopic bleacher design and fabrication shall conform to (specify applicable code by year and ADA requirements)

B. Telescopic gymnasium seating will be designed to support a vertical live load of 100 PSF, but not less than 120 PLF on both seat boards and footboards. Seating shall also be designed to carry a horizontal sway force of 24 PLF parallel to the seating and 10 PLF perpendicular to the seating.

C. Steel components shall be cold-formed from appropriate width strip stock conforming to ASTM A570 - Grade C 30KSI, ASTM A653-Grade 33 and 50, ASTM A500 - Grade B 46 KSI as applicable.
D. Lumber components are kiln dried, finger jointed, edge glued southern pine of grade "B & B Finish" manufactured to the current SPIB glued-laminated standards for southern pine.

E. Plywood deck boards shall be fabricated from Douglas Fir Premium Underlayment with exterior glue, 5 ply minimum, solid crossband directly under face ply, species Group 1 and manufactured in accordance with PS-1-95.

2. PART 2 PRODUCTS

2.1 Manufacturer

A. Telescopic seating as manufactured by Interkal, Kalamazoo, Michigan, is the standard of quality required and specified herein.

2.2 Materials

A. Model: Interkal, closed deck telescopic bleachers

B. Type: (Select one)
   Wall attached
   Recessed
   Mobile
   Free Standing
   Reverse Fold

C. Quantity:

   1. Provide ______ banks of_______ attached ______ rows high.

D. ADA (Available options)

   1. Notchouts: Provide a 36" wide wheelchair space as shown on the plans and as required to meet local code jurisdiction compliance with ADA. (Specify one row or two row deep).

   2. Truncations: Provide a full section truncation with all necessary front rails, closure panels, and portable step assemblies at aisles as required to meet local jurisdiction compliance with ADA. (Specify one row or two row deep).

E. Dimensions:

   1. Rise per row (Select one)- 10 -1/4", 11-1/2", 16"
2. Row to row spacing (Select one) - 22", 24", 26", 30", 32", 33"

F. Propulsion (Select One)

1. Manual Operation- Furnish one pair of operating handles to attach under the first row kick board for manual operation.

2. Friction Power- Furnish Interkal friction power, integral automatic electro-mechanical propulsion system to open and close telescopic seating system. Operation shall assure full visual control of the seating bank. The Wide Track System incorporates two friction drive roller assemblies as an integral part of both first row vertical column assemblies. Each section of bleacher shall have a power system that shall consist of two vertical column roller assemblies which shall include two 6" diameter by 2 ½" wide cast drive wheels for a minimum of four friction roller contact points per section of bleacher. Each roller shall have a specially formulated 45-durometer rubber covering to grip the floor as the units roll in and out. The two friction drive roller assemblies shall be installed a minimum of 7-feet apart per section. The two friction roller assemblies are linked together by a continuous drive shaft driven by a 1/2 H.P. 208V, 3-phase motor that shall enable the rollers to work simultaneously, resulting in a more efficient operation with allowance for minor variations in the floor surface. All floor friction power systems shall be controlled by a dual directional, removable walk along pendant which plugs into the front of the first row to give the operator proper position for visual control. The pendant control voltage shall be 24 VAC @ less than 50 MA for the safety of all operating personnel. The entire power system shall be U.L. Recognized. A 208/220 volt 3-phase power source, including conduit, wiring, and safety disconnect must be provided by others. The electrical contractor shall perform the connections to the seating equipment at the safety disconnect. Motors, housing, and wiring shall be installed by certified personnel.

3. Nonfriction: Gymnasium seating will be power operated. Limit switches will regulate the extended and closed positions. Movement will be reversible from any position. The power system will lock the units in any desired position. The power supply shall be (1.5HP for 8" drums or 2HP for 16" drums) 208-220 or 440 volts, 3 phase 60 cycle. A junction box must be provided for each bank of power to be located as per the manufacturer’s instructions. The electrical contractor shall furnish and install conduit, wiring and junction box. Motor starter, limit switches and key control switch to be provided by
manufacturer. Rigid pusher linkages will maintain alignment of the bank during operation. The linkages will be attached to drive reels placed at pre-determined locations at the rear of the bank. Power systems employing friction on the floor will not be acceptable.

2.3 **Accessories** (Select applicable items)

**A. Foot Level Aisles:** Provide footrest level aisles at locations and sizes as shown on plans and approved shop drawings.
   1. Center Aisle: Provide a permanently attached self-storing aisle rail, which is designed to eliminate all labor associated with set up and storage of the aisle rails.
   2. Intermediate Steps: Provide manufacturers standard intermediate step as necessary per applicable code.

**B. Last Row Closure**
   1. Rear Closure Board: Provide and install a properly supported, flush mounted board between the last row of the bleacher and the wall.

**C. Wheelchair Seating:** (Available options)
   1. Notchouts: Provide manufacturers standard permanent handicap notchout (36” wide) located as shown on architectural plans. Notchouts must be located at section joints only to avoid interference with understructure. Fascia panels shall have manufacturers standard polydeck finish to match deck board surface. Available in one row or two row deep, (select one).
   2. Recoverable Notchouts: Provide manufacturers standard recoverable handicap notchout (36” wide) located as shown on architectural drawings. Notchouts to be one row or two row deep, (select one).
   3. Recoverable Truncations: Provide full section recoverable handicap seating as shown on architectural drawings. Include portable step assemblies at affected aisle locations. Recoverable truncations to be one row or two row deep, (select one).

**D. Front Railing** (if required): Provide rigid 36” high, fixed tubular steel rail with vertical intermediate members to fill design criteria. Rail to be mounted full width at all two row deep ADA wheelchair accommodations. Finish shall be a polyester powder coat. Front rails are to be designed to comply with all applicable codes and remain consistent with all other rails not allow clearance of a 4” sphere.

**E. End Railing:** (Select One)
1. Self-Storing End Rails: Provide steel self-storing 42” high self-storing end guard rails with tubular supports and vertical intermediate members to comply with all code requirements. Rails shall be fitted to each exposed bank end from third row and above with all steel to steel connections. Finish shall be a polyester powder coat.

2. Removable End Rails: Provide steel removable 42” high end guard rails with tubular supports and vertical intermediate members to comply with all code requirements. Rails shall be fitted to each exposed bank end from third row and shall fully enclose all openings down to the deck level. Finish shall be a polyester powder coat.

F. Operation
   1. Pendant Control: Provide pendant control style operation for the bleachers. Extension and retraction shall be accomplished by use of the pendant control plugged into a single receptacle. The receptacle shall be mounted at the first row.

G. Numbering: Provide seat numbers and row letters for sculpture seat modules. Sequence to be determined by architect or owner.

H. Back Panels: (For reverse fold and mobile units) Provide the manufacturers standard polydeck finish to match deck board surface. Back panels will be provided a maximum of 8’ high.

I. Back Rails: (For reverse fold and mobile units) Provide the manufacturers standard back rails with vertical intermediate members to eliminate ladder effect and comply to all applicable building codes. Back rails are to be designed to not allow clearance of a 4” sphere.

J. Vinyl-End Curtains: Provide manufacturers standard vinyl end curtains to close off under the bleacher units in the extended position. Curtain color is to be selected from manufacturers standard offering.

K. End Panels: Provide manufacturers standard end panels to close off the opening between end rails and the wall when the bleachers are stacked. (Not available with vinyl end curtains)

2.4 FABRICATION

A. Continuous Wheel Channel: Wheel channels shall consist of a one piece formed steel channel welded to the base of a vertical column. Wheel channels accommodate 8 to 12 wheels per row for maximum weight distribution and operating ease. The number of wheels increase as the number of rows increase.
B. **Wheels**: 3-1/2" diameter with 1-1/8" non-marring soft rubber face with rounded edges designed to protect wood or synthetic floor. Provide 1/2" diameter axle for all wheels

C. **Columns**: Electrically welded closed rectangular steel tube, 2" x 3" minimum size, 14 gauge steel fitted with a rear welded gusset at the wheel channel.

D. **Row Interlocks**: Join each row structure front to rear by means of two (2) interacting steel connections, plus automatic gravity row locks where Engineering determines they are required.
   1. **Lower**: Lower track guides shall be an external superslide rod to guarantee positive engagement of vertical supports without binding and assures smooth operation over uneven floor conditions.
   2. **Upper**: Upper track guides shall completely interlock adjacent understructure support. A welded stop to ensure correct extension of bleacher unit on deck support. Use of bolt and nut stops are not acceptable, due to risk of loosening.

E. **Diagonal Braces**: Structural formed steel truss fitted to rows 4 and beyond. Bracing shall be attached to the rear riser at optimum locations to insure structural integrity. Bracing will be designed and shaped to support a minimum load of 1000(lbs) of both compression and tension forces created when the bleacher is loaded.

F. **Deck Supports**: Shall be of structural steel, 11 gauge spaced not greater than 60" on center for maximum deck stiffness.
   1. **Rollers**: Every deck support not attached to a vertical post will have an integral nylon roller to avoid steel to steel friction points for more efficient operation.

G. **Decking**: All deck boards shall consist of 19/32" nominal Douglas Fir CC grade plywood with exterior glue and solid crossbands. An extruded aluminum “H” connector shall be placed between plywood panels. Exposed wear surfaces shall be finished with a layer of high Density polyethylene plastic .025 - .030 thick, Light Gray in color, complimentary to the seat option. Deck finishes, such as clear coat, requiring more than simple touch up to restore it to a new appearance after wear occurs are unacceptable.

H. **Welds**: All welds shall be made at the factory by welders that are AWS certified on the equipment and process used.

I. **Nose Beam**: Shall be one-piece 13-gauge galvanized steel.
13-gauge steel is utilized for the necessary structural integrity to accommodate section lengths up to 26’

**J. Rear Riser:** Shall be one piece formed 14-gauge, grade 50, galvanized steel, with a continuous access joint to fully encapsulate footrest panel for ease of cleaning and additional structural support. 14-gauge roll formed steel is utilized for the necessary structural integrity to accommodate section lengths up to 26’.

**K. Splice Plates:** (For Friction or Non-Friction power only) Each section joint shall be tied together with two structural steel members per row, employing a minimum of four steel to steel through bolt connections at the nose beam and a minimum of eight steel to steel through bolt connections at the lower steel rear riser. Gauge of splice plates to match the gauge of the nose beam and rear riser. Splice plates employing steel to plywood deck board attachments will not be acceptable. Gauge of splice plates to match the gauge of the nose beam and rear riser. In order to minimize deflections and keep rows in alignment during operation, splice connections shall transfer both axial loads (tension/compression) and bending.

**L. Fasteners:** All structural connections shall be made with S.A.E. grade 5 or better stress rated bolts. The use of self-tapping bolts is not acceptable.

**M. Finish:**
1. Steel Understructure abraded, cleaned and finished with russet brown water base acrylic paint. Steel risers and nose beams finished with corrosion resistant silver gray matte finish with galvanized alloy plating.
2. Zinc plated (optional for high humidity areas).

### 2.5 Seat Options (Select One)

**A. SculptureSeat Modules:**
1. 18-inch wide one-piece individual seating modules shall be constructed of high-density polyethylene. Provide in 10” or 12” deep, (select one).
2. Each module shall have two longitudinal and five transverse internal ribs to provide additional structural integrity and resistance to impact.
3. Each module shall have a full ½” interlock to the adjacent module both around the perimeter and along the internal ribs to eliminate pinching hazards and assures proper alignment.
4. A steel-to-steel attachment of each module to a minimum 14 gauge galvanized steel nosebeam shall be provided for maximum rigidity. All such mounting hardware shall be concealed.

5. End caps shall be provided at the ends of each bank (section, if manual) of seating as well as at each aisle.

6. Each module shall have a recessed area for optional seat numbering.

7. Select from manufacturers standard solid colors.

B. Wood:
Seats and front risers shall be 1" nominal thickness x 10" nominal depth, kiln dried, finger-joined and edge glued, Southern Yellow Pine Grade “B and Better” in conformance with S.P.I.B. Glued Lumber Standards. Solid wood boards which are more subject to cracking, checking, warping, cupping, and bowing than are laminated boards or mixed lumber species are unacceptable. All boards to be smooth sanded and sealed with a moisture resistant urethane followed by a second coat of high gloss urethane.

3. Part 3 Execution

3.1 Inspection:

A. Verify that areas to receive telescopic bleachers are free from impediments interfering with installation.

B. Do not begin work until building conditions are satisfactory.

3.2 Installation:

A. Install telescopic bleachers in accordance with manufacturer’s instructions and approved submittal drawings.

B. Adjust bleachers for smooth and proper operation.

C. Clean bleachers and remove all debris from gymnasium resulting from installation.