

DIVISION 12 FURNISHING

SECTION 12661 TELESCOPING BLEACHER RENOVATION

PART 1 GENERAL

1.01 Summary

- A. Work in this section shall be governed by contract documents. Provide material, labor, equipment and services necessary to furnish and deliver all of the work of this section as page numbers specified herein, and/or as required by job conditions.

1.02 Description

- A. Bleacher Repairs
 - 1. Repair all bleachers as soon as possible for immediate use.
 - 2. Refurbish all bleachers to “as new” condition prescribed under products.

1.03 Submittals

- A. Within 35 days after the contractor has received the owner’s Notice to Proceed, submit:
 - 1. Shop drawings to Architect’s office for approval, before production-showing all necessary information as to dimensions, material, finishes, gauges, construction and installation details.
 - 2. All dimensions shall be field checked.

1.04 Quality Assurance

- A. Use adequate number of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specific requirements and the methods needed for proper performance of the work in this section.
- B. NFPA Standard: Comply with requirements of NFPA 102, “Standard for Assembly Seating, Tents, and Membrane Structures” Chapter 5, “Folding and Telescopic Seating”, except where more stringent requirements are indicated in the specifications or imposed by authorities having jurisdiction.
- C. Welding Standards: Comply with applicable provisions of AWS D1.1 “Structural Welding Code-Steel” and AWS D1.3 “Structural Welding Code Sheet-Steel”.
 - 1. Engage certified welders who have satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, have undergone re-certifications.
 - 2. Provide copy of welding certificates.
- D. The bidder shall provide a reference list of at least six (6) contracts successfully completed within the previous two (2) years that are of similar nature. At least two (2) contracts shall be in each of the following categories, if specified:
 - 1. Understructure repair with continuous footboard support system.
 - 2. Wood replacement and refinishing.
 - 3. Motorization.
 - 4. NFPA 102 Code compliance-closed deck, means of egress and safety rail.
 - 5. ADA Handicap access.
 - 6. Plastic seat modules
- E. Contractor shall have been continually engaged in the business of renovating telescopic bleachers/seating for a minimum of ten (10) years.
- F. Provide a list of at least two (2) projects and contract size for bleacher repair that were under the supervision of two (2) registered Architects, completed within the past two (2) years.
- G. Identify manufacturer of existing bleachers at each school, include references by manufacturer as required in 1.04D, and submit with bid.
- H. Provide standard one (1) year warranty for parts and labor.

- I. Provide extended twenty (20) year warranty for understructure and new motor system and include with the bid.
- J. Prior to bidding, submit:
 - 1. Sample parts, safety rails, alignment guides, sample drive motor and a diagram showing their attachment; proof of NEC compliance, independent test results for safety rail and structural analysis of understructure per 1.06 Design Criteria by professional engineer.
 - 2. All of the above ensures credibility of persons and product being bid.

1.05 Job Conditions

- A. It is the sole responsibility of the Bidder to examine all conditions prior to bidding, under which the bleachers are to be renovated and, to notify the Architect/Engineer, in writing, of any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until such unsatisfactory conditions have been corrected.
- B. Check the floor where the bleachers rest for irregularities caused by the weight of the bleachers and advise the owner.
- C. Retrofitting of bleachers is to be completed during a time when school is not in session. The School District will cooperate in making the facility available during evenings, holidays and weekends so that the work can be completed without disrupting the educational function of the school.

1.06 Design Criteria

- A. Folding and Telescopic Gymnasium Seating shall be designed to support, in addition to its own weight the following:
 - 1. Seats and decking to resist live load of 120 lbs. per lineal foot
 - 2. Uniformly disrupted live load of not less than 100 lbs. per sq. ft. of gross horizontal projection must be applied in any configuration. Live load is not required to be simultaneously applied to the intermediate rows in the closed position.
- B. A parallel sway load in excess of 24 lbs. per lineal foot of row.
- C. A perpendicular sway load of 10 lbs. per lineal foot of row.
- D. Guard and hand railing, post and supports:
- E. Engineered to withstand the following forces applied separately.
- F. Guard Rail shall be designed and constructed for:
 - 1. A concentrated load of 200 lbs. applied at any point and in any direction along top rail.
 - 2. A uniformed load of 50 lbs. per foot applied horizontally at the required guardrail height and simultaneous uniform load of 100 lbs. per foot applied vertically downward at any top of guardrail. The concentrated and uniform loading conditions shall not be required to be applied simultaneously.
- G. American Institute of Steel Construction (AISC), American Iron and Steel Institute (AISA) and Aluminum Association (AA) design criteria shall be the basis for calculation of member sizes and connections.
- H. Wood members shall be designed in accordance with National Forest Products Association's (NFOPA) National Design Specification for Wood Construction.
- I. Southern Pine Inspection Bureau (SPIB): Standard Grading Rules for Southern Pine.
- J. National Bureau of Standards/Products Standard (NSB/PS): Construction and Industrial Plywood.
- K. All design criteria shall be met when the seating is in each configuration intended or unintended for occupancy.
- L. Accessibility codes Americans with Disability Architectural guidelines (ADAAG).

PART 2.00 PRODUCTS

2.01 Intent

- A. It is the intent of this section to renovate bleachers to an “as new” condition and add corrective apparatus so the understructure cannot sag.

2.02 Scope

- A. Provide all labor, material and equipment to renovate existing telescopic bleachers, per the following specifications.

2.03 Reconstruction

Understructure Total seat capacity (1 seat = 18”)

- A. Remove all dust, dirt, and old lubrication from understructure.
- B. Remove all debris on floors beneath bleachers.
- C. Remove all foreign matter from wheels, manually, with wire brush.
- D. Inspect all wheels and axles; replace all cracked, broken and missing wheels and axles. Then lubricate for ease of operation.
- E. Fix broken knee hinges and bushing bolt assemblies.
- F. Repair lower guide stops on roller shoes as needed.
- G. Repair or replace all brake housings.
- H. Replace worn or missing brake pads.
- I. Repair all loose and broken floor anchorage.
- J. Check all wall anchorage for loose or broken shield or brackets repair, replace as required and re-align all sections correctly.
- K. Check all nuts and bolts on frame and supporting members. Tighten and/or replace as required.
- L. Inspect all handrails, rail sockets, locking setscrews and end panels for proper security.
- M. Inspect and align all wheel channels to ensure that all wheel channels are tracking properly, without binding.
- N. Repair/replace bent broken or missing rowlocks.
- O. Inspect all welded connections; where cracks are found, remove broken welds and re-weld. Where total failure of weld connection has occurred, re-enforce with steel gussets. Prior to commencing, provide to owner on-site sample welds for inspection and testing.
- P. Inspect all horse columns for structural fatigue, re-level hydraulically as required.
- Q. Mount two (2) additional footboard support brackets per row per section if required.
- R. Mount two (2) heavy-duty alignment rollers per row per section, beginning with 2nd row of the bleachers. Mount on the steel understructure only in such a manner as to provide even row spacing when bleachers are in closed position, as well as a means to provide positive support for each row from floor to the top row. Each roller to be located as close as possible to front riser board, for best possible support. In addition, provide drawings and methods confirming that understructure, in any configuration, cannot sag.
- S. Align and adjust all bleacher sections in each bank. Operate from closed to fully open position, free from binding. After successful operation, lubricate all friction producing parts.
- T. Clean up: The contractor is to remove all debris from site and broom clean the construction area.

2.04 Seating

Replace broken, split lumber (which is beyond repair) as follows: Option #1

Replacement Seats:

Replacement Risers:

- A. Replace all broken and split boards to following new lumber specifications:
 - 1. Boards shall be kiln dried to 12-15% moisture content, surfaced four (4) sides, complying with PS20 for solid lumber with the following requirements.
 - 2. Lumber species and grade: Southern Pine complying with SPIB grading rules for C and better finish grade.
- B. Contour:
 - 1. Edge, contour and size of new lumber shall match original manufacture. Submit worksheets with bid for each bleacher section that identify all cracked or broken lumber to be repaired or replaced, by row, by section for each bank of bleachers. Detail shape, size of board, type of board i.e. seat, riser, foot etc. and provide separate cost for material delivered and labor. Provide separate cost for material delivered, price per foot. Provide separate cost for material installed, price per foot.
- C. Finish specifications:
 - 1. Choice of stains or natural finish to match existing (Sample required).
 - 2. Approved Hi-Build Polyurethane shall be applied in four (4) separate applications with overnight drying between each application. Steel wool or sand smooth and wipe clean prior to final coat.

Refinishing existing seats and risers:

- A. After wood repair and replacement has been completed refinish all risers and seat boards as follows:
 - 1. For an “as new” look, remove existing risers and seat boards, plane and edge 1/16” – 1/8” off lumber.
 - 2. After planning and edging, machine sand and seal five (5) faces of lumber.

Finish specifications: Approved Hi-Build Polyurethane shall be applied in three (3) separate applications with overnight drying between each application, steel wool or sand smooth and wipe clean as on-site conditions permit prior to final coat.

In place finish specification footboards:

- A. Remove all foreign debris from existing footboards. Power sand in place and wipe clean prior to application of two (2) coat of approved sealer.

Plastic Seat Modules: Option #2

Plastic seat module, 18”length, 10” or 12” wide one-piece textured polyethylene unit blow molded, double wall, high density, impact resistant available in 14 standard colors.

Remove existing seats and risers and replace with new plastic seat modules.

In place finish specification footboards:

- A. Remove all foreign debris from existing footboards. Power sand in place and wipe clean prior to application of two (2) coat of approved sealer.

THE INTENT OF THE SECTION IS COMPLIANCE WITH CURRENT LIFE SAFETY CODE NFPA 102 CHAPTER 5 ITEMS 5.32 CLOSED DECK, 5.4.4 A MEANS OF EGRESS AND 5.5 GUARDS AND RAILS.

Closed Deck requirements:

Provide and install footboards minimum 5/4" x 12" and additional heel and toe boards to meet current code requirements for NFPA 102 Chapter 5 for Closed Deck.

Closed Deck requirements:

Refinish existing

Refinish existing deck system. Remove all dirt and debris. Hand sand, wipe clean prior to application of 2 coats of approved floor and deck enamel.

2.05 Means of Egress:

seat level

foot level

foot level w/interm. steps

Form stair base to be 16 gauge galvaneal box channel construction and connect with minimum of four (4) approved nuts and bolts to footboard. Provide 5/4" select C grade bleacher boards up to 48" in length by applicable width for complete closure, to be same height as existing seat boards. Locate seat level aisles at ends of each bank, 30" minimum width, all intermediate aisles minimum of 48" in width. Location of all intermediate aisles shall be in accordance to current code. Modify stair width to provide adequate surface for travel of continuous footboard support wheel. If the heel board must be modified to obtain adequate surface for continuous operation of wheel support system, provide drawing and details thereof with bid.

2.06 P-Rail:

Permanent attachment – self-storing

- A. Self storing P-rail is located at intermediate aisles. Single pedestal push button self locking handrails 34" high with terminating handrail (powder coated).
- B. Timesaver- Permanent attachment self storing open or closed position
- C. Demountable P-rail – rail receiver does not protrude in excess of 1" from leading edge of seating

2.06 Safety Rail:

Permanent attachment – self-storing

- A. Rail receiver base to be minimum 1/4" x 2" plate steel, fabricated and formed to fit existing manufacturer of bleachers. Attach with two (2) approved fasteners on footboard and riser. The width of the Safety Rail is will be a minimum of 20" and the height will be a minimum of 42". Weld three (3) thick wall steel pipes evenly spaced on safety rail to make strong, whip free unit. Maximum opening between rails will not allow a 4" sphere to pass. Weight to be less than one (1) pound per inch of rail for minimum downward load.
- B. Provide certified test results that exceeds design load of NFPA 102, from independent lab with bid. Safety rail to be zinc plated for long wear and then refinished with one (1) application of powder coat paint, for added protection. Safety rails to be located at all exposed ends of bleachers and installed to pose no interference with correct operation of bleacher. When additional clearance is required contractor to cut seat, riser foot and heel boards to ensure minimum 10" clearance between end of bleacher and the wall or other obstruction. Sand smooth and refinish all ends of wood then grind and file smooth edges of all metal. Touch up as required.

**2.07 ADA Compliance: permanent
recoverable**

- A. Handicap Cut-Outs: There shall be handicapped seating cut-outs in the first tier equal in number but not less than 1% of the total net seating capacity.
- B. Provide rigid high, front rails with padded tubular supports attached to the rear of each handicap seating area. Provide a full width front closure panel at handicap cut-out, extending from underside of second tier to within 1 ½” of finished floor.
- C. All recoverable ADA can be multiple uses in open or closed position.

Must be included in NY State otherwise it's an option.

- D. All permanent ADA to have padding.

2.08 Power Assist: Option A

Full Power

Power Units:	Total
Row ties:	Total

- A. Provide power operation of bleachers and rigid row connection as follows:
- B. Each bleacher bank shall be provided with drive units consisting of:
 - 1. One-quarter (1/4) horsepower gear motor, 140 to 1 gear ratioVolts AC 115, steel gears plastic gears are not acceptable .
 - 2. Two (2), 6” diameter drive rollers with 50 durometer non-marking rubber, minimum 10” widths each roll.
 - 3. Forward and reverse capability.
 - 4. Ballast frame also includes ¼” thick x 24” wide protective steel shrouds with additional steel ballast, as required.
 - 5. Positive action roller chain drive, 50 ANSI pitch.
 - 6. Each drive unit shall be permanently attached to the 2nd row footboard.
 - 7. The 2nd row footboard shall be interconnected between sections of each bank as follows: 48” x applicable width steel plate shall be fastened on the footboards in a centered position with a minimum of six (6) 1-3/4” x ¼” x 20” step bolts, three (3) per row each section.
- C. The remaining footboards of each section of each bank shall be interconnected with a 1/8” x 9” x 36” steel plate. This shall be fastened in a centered position on the footboards with a minimum of six (6) 1-3/4” x ¼” x 20” step bolts. Three (3) per row each section.
 - 1. A portable hand held pendant switch with fifteen (15) feet of cable shall plug directly into a central location in each bank.
 - 2. All drive units shall be wired in a workmanlike manner to magnetic starters to correct voltage located in a central position at the rear of each bank, in accordance with applicable electrical code. Provide drawings signed by licensed electrical engineer.
 - 3. All necessary cabling shall be firmly fastened in a workmanlike manner to the understructure of the corresponding section.
 - 4. Power service shall be provided by the owner to a central point of each bank as designated by the contractor.
 - 5. On-site instruction for proper operation of the Full Power System shall be provided to designated school personnel.

2.08 Power Assist: Option B

Power Units:	Total
Row ties:	Total

- A. Provide power operation of bleachers and rigid row connection as follows:
- B. Each bleacher bank shall be provided with drive units consisting of:
 1. One-half (1/2) horsepower gear motor, 140 to 1 gear ratio 208 3 Phase, steel gears plastic gears are not acceptable.
 2. Two (2), 6" diameter drive rollers with 50 durometer non-marking rubber, minimum 14" widths each roll.
 3. Forward and reverse capability.
 4. Ballast frame also includes 1/4" thick x 24" wide protective steel shrouds with additional steel ballast, as required.
 5. Positive action roller chain drive, 50 ANSI pitch.
 6. Each drive unit shall be permanently attached to the 2nd row footboard.
 7. The 2nd row footboard shall be interconnected between sections of each bank as follows: 48" x applicable width steel plate shall be fastened on the footboards in a centered position with a minimum of six (6) 1-3/4" x 1/4" x 20" step bolts, three (3) per row each section.
- C. The remaining footboards of each section of each bank shall be interconnected with a 1/8" x 9" x 36" steel plate. This shall be fastened in a centered position on the footboards with a minimum of six (6) 1-3/4" x 1/4" x 20" step bolts. Three (3) per row each section.
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 3. All necessary cabling shall be firmly fastened in a workmanlike manner to the understructure of the corresponding section.
 4. Power service shall be provided by the owner to a central point of each bank as designated by the contractor.
 5. On-site instruction for proper operation of the Full Power System shall be provided to designated school personnel.

PART 3 EXECUTION

3.01 Demonstration:

- A. Upon completion of installation, demonstrate proper care and operation of all bleacher units to Owner's designated personnel. Provide video for future use.
- B. Submit printed or typed recommended procedures for cleaning and maintenance of bleachers for incorporation in the Operation and Maintenance Manual.

3.02 Warranty: **One Year Warranty**

- A. Work performed under this contract shall carry a one (1) year warranty.
- B. Any product or workmanship failure will be corrected to owner's satisfaction free of charge. **Misuse or abuse of equipment, Acts of God, war, vandalism, flood or fire** is not covered by this warranty.

Twenty Year Warranty

20-year warranty and service contract will be available after installation of new or renovation of existing bleachers. If the understructure sags, the motors become defective or the friction drive rollers delaminate, we will repair or replace, free of charge. Warranty specifically allows for climbing fronts of bleachers in partial open or fully stored position and will not be considered misuse or abuse of equipment. Warranty does not include: **Misuse or abuse of equipment, Acts of God, war, vandalism, flood or fire.** Code compliance and yearly filing of proof of inspection and service are required. *Failure of filing of proof shall deem warranty null and void.* Owner is required to (1) keep bleachers and floor clean and free of any/all debris. (2) Open and close bleachers evenly.