

SECTION 133416 – GRANDSTANDS, BLEACHERS, AND PRESS BOX

PART 1 GENERAL

1.01 DESCRIPTION OF WORK

A. Provide engineering, material, freight, installation and supervision to furnish a new permanent grandstand as shown on the drawings and specified herein. Work shall include, but not limited to the following:

1. Galvanized steel understructure.
2. Fully closed interlocking aluminum deck, riser and seats.
3. Aluminum guardrail and handrail system.
4. Egress stairs and ADA compliant access ramp.
5. Press box.
6. Aluminum skirt board closure system as indicated on drawings.
7. Space below the grandstand and between bracing for portable storage containers as indicated on drawings.

1.02 RELATED DOCUMENTS

A Drawings and general provisions of the contract, including general and special conditions and division 1 requirements, apply to this section.

1.03 RELATED SECTIONS

- A. Division 1 – General Requirements
- B. Division 2 – Site work
- C. Division 3 – Concrete

1.04 REFERENCES

- A. ASTM A36 - Carbon Structural Steel.
- B. ASTM A123/A123M-02 - Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- C. ASTM A307/A325 - Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.
- D. ASTM A325-07a Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.

1.05 DESIGN REQUIREMENTS

- A. Bleachers, grandstands and press box structures shall be designed by a professional engineer licensed in the state of Pennsylvania
- B. Applicable Codes
 1. International Building Code, 2018 edition.
Including ICC 300-2017
 2. American with Disabilities Act.
 3. Aluminum Association of America.
 4. AISC Manual of Steel Construction, Load and Resistance Factor

Design, Second Edition.

- C. Design Loads
 - 1. Live load: 100 psf gross horizontal projection.
 - 2. Live load, seat planks: 120 plf.
 - 3. Horizontal sway load: 24 plf parallel to seat planks.
 - 4. Perpendicular sway load: 10 plf seat planks.
 - 5. Treads: Minimum concentrated load of 300 pounds on 4 square inches
 - 6. Guard Rail load:
 - a. Vertical load: 50 plf.
 - b. Horizontal load: 50 plf.
 - c. Concentrated load: 200 pounds.
 - 7. Wind load: Per local building code
- D. General: The structure shall be properly braced for wind and construction loads until all structural elements are secured. The understructure shall be of a system permitting clear openings for four storage containers. Lateral and longitudinal bays shall be properly cross braced.

1.06 SUBMITTALS

- A. Submittals shall comply with section 01 33 00 – Submittal Procedures: Submittal requirements
- B. Product Data:
 - 1. Manufacturers technical data and specifications.
 - 2. Storage and handling requirements.
 - 3. Installation instructions.
 - 4.
- C. Shop Drawings:
 - 1. Submit electronic copies of manufacturer's shop drawings, signed and sealed by a Professional Engineer licensed in the state of Pennsylvania, showing product dimensions, framing, deck configuration, railings, stairs, ramps and any other necessary items specified within this section.
 - 2. Submit electronic copies of submittal drawings signed and sealed by a Professional Engineer licensed in the state of Pennsylvania, for review by code official and architect/engineer.
 - 3. Material Samples: Submit samples of each product specified, depicting the appropriate style and color. Including siding, interior finishes and vinyl coated fence.
- D. Certificates:
 - 1. Submit manufacturers and installers liability, workers compensation and auto insurance certificates.
 - 2. Manufacturer's certification that materials furnished comply with requirements indicated and that materials meet or exceed test requirement indicated.

1.07 QUALITY ASSURANCE

- A. Single Source Responsibility: Single manufacturer shall provide all components required to install the products specified in this section.

- B. Manufacturers Qualifications: Manufacturers must have 10 years of experience in the manufacturing of bleachers and grandstands of the type specified under the same corporate name. Any company that has been reorganized due to bankruptcy must have been in business for the 10 years to qualify.
- C. Engineering Qualifications: The Grandstand shall be designed and approved by a Licensed Professional Engineer registered within the state of Pennsylvania. All submittal drawings shall bear **their** seal.
- D. Product Liability: The Grandstand Manufacturer shall provide A Certificate of Product Liability Insurance in the minimum amount of \$1,000,000.00 for the life of the product. This coverage shall be in lieu of and supersede all other insurance requirements referenced within the specifications.
- E. Any bid from any manufacturer/installer that has a demonstrated history of shoddy work, unsafe labor practices, failure to complete projects on time, been cited for violations of any state department of labor or has been disallowed from bidding on work in any state will be rejected.
- F. Installer Qualifications: Factory-trained and experienced in the proper installation of bleachers and grandstands.
- G. Welders: AWS certified.
- H. **AISC CERTIFICATION**: All structural steel must be fabricated in an **AISC Certified** plant that participates in the AISC Quality Certification Program for Standards for Steel Building Structures. Only manufacturers that are able to produce a certificate of compliance issued by AISC meet this standard. Manufacturers listed on the AISC website as a "member" do not meet this requirement. All steel manufactured in a non-AISC Certified plant will be rejected. Third party on-site inspections are specifically prohibited.
- I. Local Representation: Manufacturer shall have a local representative with authority to provide information and answers at a pre-construction meeting.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to site with manufacturer's labels clearly identifying the products and contractor or fabricator.
- B. Store materials in a clean, dry area, away from exposure to the weather until they are ready for installation.
- C. Protect materials while handling to avoid damage during installation.

1.09 SITE CONDITIONS

- A. The general contractor shall place materials suitable for surrounding the grandstand foundations and supporting storage sheds between the columns of the grandstand. *–The concrete slab will be placed as part of this project.* See structural drawings.
- B. Owner shall clearly mark all underground utilities and notify the appropriate parties prior to work commencement.

- C. Proceed with work only when current or forecasted weather allows.

1.10 WARRANTY

- A. The product shall be guaranteed for a period of one year after completion against defective materials. Additionally, a one-year warranty on the workmanship of the installation is also required. Furthermore, all aluminum seats and footboard members shall be warranted for a period of 5 years against loss of structural strength, or failure of the clear (204R1) anodized finish due specifically to: atmospheric temperature fluctuations or continued outdoor exposure to rain, snow, and ultra-violet rays. Damages resulting from abnormal use, vandalism, or incorrect installation (if installed by other than an authorized manufacture's installer) shall void this warranty. Mill finish staining and/or oxidation is specifically excluded by the warranty.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Acceptable Manufacturer:
Southern Bleachers Southern Bleacher Company, Inc.
P: 610-216-0827
E: treon@southernbleacher.com
Upstate NY, NJ, PA, DE & FL
www.SouthernBleacher.com
Additional acceptable manufacturers are: Dant Clayton and E & D Specialty Seating, GT Grandstands, Inc.
- C. Requests for all substitutions must be approved in a written Addendum by the architect or owner.

2.02 PERMANENT GRANDSTANDS

- A. Grandstands:
1. Grandstand Size as shown on the drawings.
 3. Stringers shall be wide flange and placed at a maximum 6 feet on center.
 4. Decking rise: as indicated on drawings.
 5. Tread depth: as indicated on drawings.
 6. Structural hardware: Meeting or exceeding requirements of ASTM A307.
 7. Entry stairs:
 - a. Stair rise: Maximum of 7 inches.
 - b. Stair tread: Minimum of 11 inches with a contrasting nosing strip.
 - c. Guard Rail: 42 inches above the leading edge of step with same construction as specified for the grandstand.
 - d. Handrails: Anodized handrails and handrail extensions shall be no less than 34 inches or more than 38" above the nosing of the treads or landings. Handrails shall be continuous with an unobstructed handgrip area the full length of the stairs
 - e. Handrails shall extend 12 inches beyond the bottom riser and 12 inches beyond the top riser in the direction of travel. Handrail ends shall be returned or terminate in newel posts or safety terminals.

8. Ramps:
 - a. Slope: 1:12 maximum
 - b. Guard Rail: 42 inches above the leading edge of step.
 - c. Handrails: Anodized handrails and handrail extensions shall be no less than 34 inches or more than 38" above the nosing of the treads or landings. Handrails shall be continuous with an obstructed handgrip area the full length of the stair. Handrails shall extend 12 inches beyond the bottom of the ramp and 12 inches beyond the top of the ramp in the direction of travel. Handrail ends shall be returned or terminate in newel posts or safety terminals.
9. Aisles
 - a. Minimum Width: 54 inches for interior aisles and 36 inches for end aisles unless larger aisles are required by the applicable local code.
 - b. Aisles with seating on both sides must have a 34-38 inch high handrail with intermediate rail at approximately 22 inches above the tread.
 - c. Aisle tread nosing shall have a contrasting color.
 - d. Intermediate aisle steps: If required by the applicable code, shall be used to provide equal rise and run throughout the aisle. Each shall have an contrasting nosing.
10. Accessible Seating:
 - a. Provide wheel chair spaces as required by the ADA.
 - b. Any adjacent riser area to be closed using intermediate construction.

2.03 Materials

2.03.1 Structural Steel

- A. All detailing, fabrication, and erection shall be in accordance with AISC Specifications, Load & Resistance Factor Design, 2nd Edition
- B. Structural steel shall be ASTM A572 multi-certified grade 50, Miscellaneous steel shall be ASTM A36.
- C. All bolts 5/8" diameter and larger shall be ASTM A325. All bolts 1/2" and smaller shall be ASTM A307. Threaded rod shall be ASTM A36.
- D. All welds shall conform to ANSI/AWS D1.1, latest edition. Electrodes shall be E70XX.
- F. Support beams shall be wide flange shapes.
- G. Stringer shall be wide flange shape.
- H. Guardrail support posts shall be ASTM A36 3" x 2" x 1/4" structural angle.
- I. Steel Finish

Structural steel shall be coated with a minimum of 2 oz. hot dipped galvanized in accordance with ASTM 123-A with a minimum galvanized film thickness of 3.3 mils. Zinc shall be 98% purity, certified with written test results based on samples taken from the tank.

2.03.3 Guardrail - Vertical Picket Guardrail

A. Materials:

1. Top and bottom rail shall be 1 1/2" ASTM.A36 hot rolled steel channel.
2. 6 Gauge black vinyl coated chain link fence.
3. Vertical support posts shall be ASTM A-53 steel 2" square tube seal welded top and bottom cap

B. Fabrication:

1. Welds to be full seal welds around all joints in materials.
2. All welds shall be shop welded to top and bottom channel. No partial or tack welding.

C. Finish:

Galvanized

2.03.4 Handrail

- A. Two-line center aisle handrails shall be anodized extruded aluminum pipe of 6061-T6 alloy, .145" thickness.
- B. Handrails shall provide a minimum 1-1/2" clearance from the guardrail material and shall extend 12" past the last riser with a return. Newel posts will not interrupt handrails. Handrails will not project more than 4.5" into the width of a stair or ramp.
- C. Two line center aisle handrails shall be anodized extruded aluminum pipe of 6061-T6 alloy, 1-5/8" O.D. Rails shall be discontinuous and spacing between rails shall be not less than 22" nor more than 36". Rails shall not span more than 5 rows of seating. Guardrail tube shall be placed at top, bottom and all ends and returns of the chain link fabric to make a perimeter framework. Tension bars do not meet this requirement. Railings are to be 42 inches high, located at all sides and long the back when bleachers are 30 inches above grade.

2.03.5 Seating

- A. Seats shall be 6063-T6 extruded aluminum with a fluted surface and a minimum of 4 vertical support ribs. The exact size of seat board is 2" x 10" x .078" wall thickened at the joints and weighing 1.9 lbs. per foot with 1" radius comfort curve front edge. Aluminum shall be cleaned, pre-treated and 204 R1 clear anodized or powder coated finish selected from manufacturers standard color chart. End caps shall be cast aluminum and mechanically attached to seat board.

2.03.6 Decking System

2.03.6.1 **No penetration fully closed interlocking deck**

- A. Footboards shall be 6063-T6 extruded aluminum with a fluted surface with a minimum wall thickness of 0.078" between flutes. The minimum acceptable vertical height is 1.500". Footboards shall be mill finish. Mill finish aluminum when exposed to the atmosphere forms a transparent, protective oxide coating. Mill finish aluminum will stain and the stains can be erratic in nature and can vary in color from light bronze to black. This staining is a natural occurrence.
- B. Individual planks shall be interlocking lengthwise and form a "V" shaped interlocking channel and gutter system running the length of the planks.
- C. Riser boards shall be 6063-T6 aluminum and shall be cleaned, pre-treated and 204 R1 clear anodized or powder coated finish selected from manufacturers standard color chart.
- D. The ends of decking system will be finished with one piece mill finish aluminum channel end cap.
- E. Nose planks feature an extruded channel to receive the riser plank.
- F. Nose planks shall allow for a 1" extruded channel to receive the riser plank.
- G. Nose planks shall allow for a 1" extruded aluminum contrasting aisle tread nosepiece located at all vertical aisles and powder coated black.
- H. Heel planks shall have a lip at the back to allow the overlapping of the riser plank.
- I. No through bolting of any kind shall be permitted to secure "top side" components; no exceptions.
- J. Riser: 6063 T-6 aluminum alloy, corrosion resistant, maintenance free interlocking riser. Riser shall be of sufficient height to completely close the deck and interlock with the deck extrusions directly above and below the respective rise. Riser shall have a 204 R1 clear anodized or powder coated finish selected from manufacturers standard color chart.
- K. A "tongue and grove" decking configuration will not be accepted.

2.03.6.2. **Walking Surface Requirement**

- A. All aluminum decking intended for use as a walking surface, including walkways, aisles, walking surfaces in seating sections, stairs, ramps, platforms, handicap areas, and landings, shall be manufactured, extruded and/or treated to increase spectator safety in wet conditions. The walking surface treatment must increase the slip resistance of mill finished aluminum to achieve a slip index (coefficient of friction) of 0.80 or higher in all directions of travel, including parallel to seating, as defined by ANSI/NFSI B101.1 1-2009 test method for measuring Wet Static Coefficient of Friction of Common Hard Surface Floor Materials. All aluminum walking surfaces shall be classified as "HIGH TRACTION" as defined by the National Floor Safety Institute and as defined by ANSI/NFSI B101.1 1-2009 test method for measuring Wet Static Coefficient of Friction of Common Hard Surface Floor Materials. Certification of this classification must be included with the submittals.

- B. The walking surface may be factory shot-blasted to meet the coefficient of friction of 0.80. All Shot blasted surfaces (surface profiling) must receive an anodized coating to minimize the oxidation and mill finish staining brought about by the blasting/profiling process.
- C. An independent test substantiating the minimum required 0.80 coefficient of friction must be provided.

2.04 PRESSBOX MATERIALS/FABRICATION

- A. Floor Construction: Per Manufacturers Standard and per engineer of record for Press Box: Basis of Design
 - 1. Frame:
 - a. Galvanized steel floor frame sized to support structure and metal pan for support of insulation.
 - 2. Bottom Board:
 - a. .030 gauge one-piece galvanized steel bottom pan.
 - 3. Insulation:
 - a. as required to satisfy 2018 IECC, C402.1.5 component performance alternative, or C402.2 Specific Building Thermal Envelope Insulation Requirements (Prescriptive)
 - 4. Joists: (Welded Framing)
 - a. 60CSJ16, 6 inch x 16ga. galvanized steel joists, on 16 inch centers, longitudinal framing.
 - 5. Decking:
 - a. Interlock aluminum deck.
 - 7. Molding:
 - a. 4 inch Resilient vinyl base.
- B. Wall Construction Per Manufacturers Standard and per engineer of record for Press Box: Basis of Design
 - 1. Studs: ~~4"x4"~~ x 11 gauge square tubing with maximum span of 14 ft on front wall and maximum span of 6 feet on back wall and 4 1/2" x 2 1/2" x 14 gauge steel Cees with maximum spacing of 5 feet for all wall with siding. Spans greater than these require engineered calculations for design.
 - 3. Headers: (As span and design load requires)
 - 4. Ceiling Height:
 - a. as shown on drawings
 - 5. Covering:
 - a. 1/2 inch vinyl-faced gypsum panels, Class A F.S.R.
 - 6. Insulation:
 - a. as required to satisfy 2018 IECC, C402.1.5 component performance alternative, or C402.2 Specific Building Thermal Envelope Insulation Requirements (Prescriptive)
 - 7. Sheathing:
 - a. 1/2 inch CDX Dricon fire-retardant treated plywood.
 - 8. Siding:
 - a. BOD-26-gauge prefinished R-panel as manufactured by MBC or equal. Vinyl-clad siding is not acceptable.
- C. Roof Construction Per Manufacturers Standard and per engineer of record for Press Box: Basis of Design

1. 4" x 4" x 11 gauge square tubing and 4" x 2 1/2" x 14 gauge steel Cees.
 2. Overhang:
 - a. As shown on drawings.
 3. Ceiling:
 - b. T-grid acoustical suspended ceiling system.
 4. Insulation:

as required to satisfy 2018 IECC, C402.1.5 component performance alternative, or C402.2 Specific Building Thermal Envelope Insulation Requirements (Prescriptive
 5. Roof Surface
 - a. 1/8" four-way steel plate roof, continuous welded seams. 060 polyester reinforced skid and spike resistant PVC membrane, fully adhered.
- D. Windows
1. Fixed and horizontal sliders as shown on drawings. Extruded aluminum frames, AAMA LC-25 structural rating, with 1" clear insulated tempered glass and removable insect screens.
- E. Doors
1. Exterior Doors to be manufacturer's standard hollow metal insulated doors with vision lite. 18 gauge skin sheets, and 16 gauge steel door frame with threshold & weather stripping. Owner to supply key cores.
- G HVAC – PTAC Unit per Manufacturers Standard. See MEP drawings for coordination.
- H. Electrical
1. Service Entrance Panel
 - a. furnished and installed by Press Box MFG See E601
 2. Receptacles
 - a. Furnished and installed by Press Box MFG
 3. Lighting
 - a. furnished and installed by Press Box MFG
 4. Circuits
 - a. furnished and installed in raceway installed in factory
- E Scorer's Counter
- a. as shown on drawings

2.05 FABRICATION

- A. Material/Finishes:
1. Substructures:
 - a. Structural fabrication with ASTM A36 steel.
 - b. Shop connections are seal welds.
 - c. After fabrication all steel is hot-dipped galvanized to ASTM A123.
 2. Seating/Planking:
 - a. Seat planks, backrest, riser planks and railing are extruded aluminum alloy 6063-T6. Clear anodized 204R1, AA-M10C22A31, Class II.
 - b. Tread Planks: Extruded aluminum alloy, 6063-T6 mill finish.

- c. Joint Sleeve Assembly: Extruded aluminum alloy, 6063-T6 mill finish.
- 3. Accessories:
 - a. Channel End Caps: Aluminum alloy, 6063-T6, clear anodized 204R1, AA-M10C22A31, Class II.
 - b. Aisle and Stair Nosing: Extruded aluminum alloy 6063-T6, non-skid black powder coated finish.
- 4. Hardware:
 - a. Bolts, Nuts: Hot-dipped galvanized.
 - b. Tie-Down Clip: Aluminum alloy 6061-T6.
 - c. Structural Hardware: Meeting or exceeding the requirements of ASTM-A307. No connections utilizing high strength bolts are classed as slip critical.
- 5. Factory Connections.
 - a. All connections made in shop to be welded shall conform to ANSI/AWS D1.1, latest edition.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. Examine all soils and footings to ensure solid and secure footings.

3.02 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- D. Prepare surfaces using the methods recommended to achieve the best result based on project conditions.

3.03 INSTALLATION

- A. Installation shall be performed by manufacturers certified installation crew. Installer shall be experienced in similar installations to that indicated for this project.
- B. Follow all current application requirements for installation under conditions specific to the project.
- D. Where manufacturer's requirements and building codes are in direct conflict, the more restrictive method of application shall prevail.

3.04 PROTECTION AND CLEAN UP

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.
- C. Prior to final inspection, clean all surfaces in accordance with manufacturers' recommendations.

PSUH Stadium Seating &
Restroom Building
PSU Job # 00-08713.00

WMF 2022.138.00

January 2024

D. Remove and dispose of all construction debris.

END OF SECTION