



## SPECIFICATIONS FOR Steel I-Beam Grandstand with Semi-Closed Decking

### Part I

#### 1.0 QUALITY ASSURANCE

- A. Codes and Standards
  - 1. Comply with provisions of 2009 IBC and local codes and standards.
- B. Qualifications of Manufacturer
  - 1. Employ manufacturer with continuous experience manufacturing bleachers and grandstands for not less than the previous ten years. Factory welders must be AWS certified according to applicable code compliances.
- C. Welding
  - 1. Employ only welders who have passed AWS qualification tests for type and position of welding as prescribed in "Standard Qualification Procedure" of American Welding Society.

#### 1.1 SUBMITTALS

- A. Shop Drawings
  - 1. Erection Plan
    - a. Complete plan showing all locations, dimensions, and quantities of structural systems, including framing, decking, seating, stairs and ramp. Shop drawings to be sealed by a registered professional engineer with schedules for type, location, quantity and details of steel and aluminum components required for project.
- B. Product Data
  - 1. Manufacturer to submit descriptive product data for project.
- C. Certificates
  - 1. Warranty
    - a. Durability of grandstand against rupture or structural failure covering workmanship and materials shall be guaranteed for a period of five year following substantial completion.

### PART II PRODUCT

#### 2.1 GENERAL

- A. Description
  - Galvanized Steel I-beam Design
  - Vertical columns are placed at approximately 18' on center laterally but may be qualified per engineer's specifications.
  - Stringers: Stringers are wide flange beams with steel angle rise and depth fabrications included and are placed at 6 feet on center.
    - a. Front Walkway: 72". OPTION: as wide as requested by the architect.
    - b. Elevated 30 inches above grade at benchmark. OPTION: Elevation as requested by the architect.
- 1. Provide complete assembly including:
  - a. Galvanized I-beam steel substructure
  - b. Aluminum Seats, Steps, and Deck

- c. Aluminum Guard Rails
  - d. Ramps, Stairs and Railing Systems
  - e. (Concrete caissons to be provided by others following design and caisson locations provided by Bleachers International SE engineer.)
2. Entry Stairs:
- a. Entry stairs to be firmly anchored to uniformly poured concrete bases.
  - b. Stair rise: 7" and depth: 11" (or per project requirements), using 2" x 12" mill finished aluminum plank.
  - c. Risers to enclose the stairs in all directions of travel.
  - d. Guardrails on stair to be 42 inches above leading edge of step with intermediate rail at approximately 22 inches, below.
  - e. Stair to have handrail extension. The handgrip portion of handrails shall be 1.66 O.D. in cross-sectional dimension. The handgrip portion of handrail shall have a smooth surface with no sharp corner. The top of handrails and handrail extensions shall be placed not less than 34 inches or more than 38 inches above the nosing of treads and landings. Handrails shall be continuous the full length of the stairs and shall extend in the direction of the stair run not less than 12 inches beyond the bottom riser.
3. Decking: Rise per row - 8 inches, depth per row – 24 inches, or per particular project requirements
- a. Each seat is 17 inches above its respective tread.
  - b. Decking is a semi-closed arrangement.
  - c. Joint Sleeve Assembly: Aluminum sleeves (2 per joint) to insert in flat plank to maintain true alignment in joining together plank pieces. Splice cover is unacceptable between two flat plank pieces joined in a straight line.
5. SEATING
- a. Seating arrangement: 1 – 2" x 10" seat plank, extruded aluminum alloy 6063-T6, clear anodized 204R1, AA-M10C22A31, Class II, and a wall thickness of .078", 2 x 10" one-piece anodized end caps.
  - b. Back support (Optional): 1 – 2" x 6" back contoured plank, extruded aluminum alloy 6063-T6, clear anodized 204R1, AA-M10C22A31, Class II, and a wall thickness of .078", 2 x 6" one-piece end caps.
6. Guard railing: To be on all sides of bleacher, entry stairs and ramps, portals, and landings. Railing to be anodized aluminum with end plugs at ends of straight runs, and/or elbows at corner. All guardrails shall be secured to angle vertical safety risers by galvanized fasteners.
- a. Guard railing shall be 42" above walkways and entrances. Railing shall be 42" above any adjacent seat. Guard railing on sides and back shall include 9 gauge galvanized chain link fencing fastened in place with galvanized fasteners and aluminum ties.
7. Ramps:
- a. Slope: ADA compliant (1 in 12 pitch).
  - b. Frames are to be extruded aluminum, mill finish; Planks (treads) to be extruded aluminum, of 6063-T6 alloy
  - c. Treads to run perpendicular to the direction of travel.
  - d. Guard rail to be 42 inches above ramp with 1" x 6 ½" toe board below.



e. Guardrails: Three line aluminum rail 36 inches above ramp tread with intermediate rail at approximately 20 inches. Railing shall be continuous the full length of the ramp, and shall extend in the direction of the ramp 12 inches beyond the end of the ramp, returning to end at a newel post.

8. Handicap Provision:
  - a. Riser area adjacent to wheelchair spaces to have intermediate construction so 4-inch sphere cannot pass through openings.
9. Stadium Seating: Optional, as specified by a project
10. Roof: Optional, as specified by a project
11. Press Box: Optional, as specified by a project
12. Concrete Foundation: Optional, if required by a project

## B. Design Loads

1. Comply with the following basic design loads:
  - a. Dead Load 6 psf seat and footboards
  - b. Live Load: 120 psf gross horizontal projection
  - c. Lateral Sway Load: 24 plf seat plank
  - d. Perpendicular Sway Load: 10 plf seat plank
  - e. Wind Load:: Per local building code requirements.
  - f. Design Wind Speed: 120 mph on projected vertical surface
  - g. Live Load of Seat and Tread Plank: 120 plf
  - h. Guardrail: 100 plf vertical and 50 plf horizontal.
  - i. Seismic loads never control the design of these systems.

## D. Fabrication/Construction

1. Material - Substructure
  - a. Structural shapes meet one of the following ASTM specifications: A36, A36/A572 grade 50, A572 grade 50, A529-50, or A500 grade B.
  - b. Shop connections are seal welds.
  - c. After fabrication, all steel is hot-dip galvanized.
2. Material - Extruded Aluminum
  - a. Seat Boards: Nominal 2"x10" anodized plank with anodized end caps. Anodizing: 204 RI, AA-MI10C22 A31, Class II
  - b. Footboards: Nominal 2"x10" mill finish with end caps.
  - c. Riser Board: 1" x 6 1/2" mill finished with end caps. OPTION: Anodized or powder coat finish
  - d. Joint Sleeve Assembly: Extruded aluminum alloy.
  - e. Guardrail: Anodized Aluminum Pipe; 1.66" O.D.
  - f. Chain link Fencing: 9 gauge
  - g. The components of the entire structure are to be assembled in such a manner that at elevations above 30 inches over grade a 4-inch sphere cannot pass through the assembly.

## PART 3 – EXECUTION

### 3.01 INSTALLATION

Install bleacher in accordance with manufacturer's installation procedures.